SCIENCE






Animal Habitats

A Complete 4th Grade Inquiry Unit

Madly Learning

SCIENCE

Animal Habitats

Name: _____

Teacher: _____

Animal Habitat

Dear Teacher,

Thank you for purchasing your own license to use this product in your classroom. This unit has been designed to support your teaching with your students to focus on an inquiry approach to teaching. In this unit, students will learn how to research and gather information, analyze, and synthesize information that they find from various sources to learn all about both the major systems of the Human Body (Respiratory, Digestive, and Circulatory Systems) and various habitats around the world.

This unit can be used by teachers at any stage of their inquiry journey. Learning how to use an inquiry approach in your classroom is a valuable and classroom-changing experience. As you begin, I cannot promise you that it will all be smooth sailing because inquiry can be messy and uncomfortable as the teacher lets go of some control over student learning and the students begin to learn to take a more active role in their own learning. Understanding that this process is a journey and that this unit will help you begin, continue, or support you on that journey is paramount. If you are new to inquiry and would like more support, please check out my video inquiry series on my website at **www.madlylearning.com** to learn about how I implement inquiry in my classroom with my split grade.

These two units are combined together to help teachers of split grades teach these two concepts together. Although there are very few overlapping ideas, building your students' independence skills as they work through this unit is also an important factor in determining your success. Students will need to have both independent work skills and group work skills already in place to allow you to teach both groups separately. **Building independence support** can be found through this free resource.

As always, if you have any questions, concerns, or comments you would like to share with me, I am always available to support you. Send me an email and I will get back to you promptly. I appreciate when buyers contact me directly on any issue prior to leaving feedback.

Enjoy the unit.

Sincerely,

Patti
@madlylearning.
EMAIL : info@madlylearning.com

Digital Support

Throughout this unit, there are various references to using technology to support your instruction and implement this unit. The following is a quick guide to using these digital tools.

QR CODE READER - Free App:

This is a free app for mobile devices that can scan QR codes. These are picture codes that help to easily direct students to the website that you want them to go to without needing to enter a web address. Students simply take a picture of the QR code and they are immediately linked to the website. Additionally, on each page of this resource with a QR code, there is a short web link that can be entered if you are using a desktop or laptop computer.

QR Code Reader APP

LiveBinder:

Many times when dealing with websites, the pages that you want to link to will change. In searching for a way to easily share links with customers for their students to access, I have found LiveBinder. It is like a binder online. There are stored webpages organized into tabs that can be easily redirected if a link dies or stops working. The link your students use will stay the same. I have linked all of the research required for this unit in a LiveBinder. Please do not share this link with other teachers. You paid for this resource, so the access to this tool is yours. Please notify me if a link does not work for you and it will easily be fixed. My email address is: Info@MadlyLearning.com

LIVEBINDER LINK

For Student Research

Animal Habitats

http://goo.gl/n74u4d

Access code:

How to read
The Lesson Plans

Prep: Suggestions to help you prepare for the lesson

Read each grade horizontally.

The text highlighted in red (lighter) text is teacher led time.

The other black text is independent tasks

LESSON #2

(4) L2

Preparation:
Print the photos for the wonder wall activity in colour preferably. Replace any of these pictures with regalia if possible. Check the livebinder for additional photos and images you can use to supplement this activity. Number each photo on the back for student reference.

Part A
Wonder Wall Activity - WHEN YOU SEE RED, IT IS THE TEACHER DIRECTED PORTION OF THE LESSON.

Have students sit in a knowledge building circle.

Start in silence. Pass out the Wonder Wall picture cards and artifacts around the circle. Cards have an answer key to help aid in student discovery.

Have them think of the following things as they look:
- *What do you see?*
- *What do you wonder?*
- *What does this remind you of?*
- *What do you think about this?*
- *What is the significance of this?*

Part B
Wonder Wall part 2 - WHEN YOU SEE BLACK, IT IS THE STUDENT INDEPENDENT WORK PORTION OF THE LESSON.

Lay the photos around the room and give each student a Wonder Wall Recording Page. Have them add their thoughts to the recording page. They should focus on 5-6 images that had them thinking the most.

They can rely on the question prompts to help them with what to write.

Students should do this quietly.
Slide 1 - Ancient Greece, Ancient Egypt, Ancient Greece, Ancient Rome.
Slide 2 - Ancient Egypt
Slide 3 - Ancient Mayan civilization
Slide 4 - Indus Valley
Slide 5 - Medieval Europe
Slide 6 - Ancient China
Slide 7 - As noted
Slide 8 - Inuit
Slide 10 - Haudenosaunee

Assessment
Collect the student recording pages. Analyze these pages. What general questions did students have? What themes arose as they were looking at these pictures? Make a note of these. These will lead to your lines of inquiry for this unit.
Through this you may notice that students are interested in some societies more than others. This will be good information that will help you direct your focus and narrow the societies that are compared.

Write out the main student questions or themes.

Accommodations

Work with a small group of students to help them record their answers.

Answers can be recorded using tablets. Students can use explain everything to take a picture and record their thoughts over the image as a video file.

Notes
Once this activity is done take the pictures from this activity and post them on a bulletin board or tri-fold board for students to reference later. Using their own questions or themes that you notice, post these questions as well for students so that they are aware of the main questions that they may have.

14

Extra information, suggestions, or extension activities.

Curriculum Focus

Grade 4

Ontario

	Grade 4	Curriculum Expectations
1	Intro - Draw a picture	
2	What is a habitat? food, water, shelter, and space	3.1 - Demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light).
3	Food chains	3.2 - Demonstrate an understanding of food chains as systems in which energy from the sun is transferred to producers and then to consumers.
4	Adaptable Animals vs. Specialized Species	3.7 - Describe structural adaptations that allow plants and animals to survive in specific habitats. 3.8 - Explain why changes in the environment have a greater impact on specialized species than on generalized species.
5	Polar Region Habitats	3.3 - Identify factors (e.g., availability of water or food, amount of light, type of weather) that affect the ability of plants and animals to survive in a specific habitat. 3.4 - Demonstrate an understanding of a community as a group of interacting species sharing a common habitat. 3.5 - Classify organisms, including humans, according to their role in a food chain (e.g., producer, consumer, decomposer). 3.6 - Identify animals that are carnivores, herbivores, or omnivores.
6	Grassland Habitat	
7	Tropical Rainforest Habitats	
8	Ocean Habitats	
9	Coniferous Forest Habitat	
10	Desert Habitats	
11	Why are animals endangered?	3.9 - Demonstrate an understanding of why all habitats have limits to the number of plants and animals they can support. 3.10 - Describe ways in which humans are dependent on natural habitats and communities.
12	Inquiry Project	Overall 1.0 - Analyze the effects of human activities on habitats and communities (includes all specific expectations as well). Overall 2.0 - Investigate the interdependence of plants and animals within specific habitats and communities.

Grade 4

Unit Checklist

Check off the criteria when students demonstrate mastery of the learning outcome.

Curriculum Expectations									
Demonstrate a solid understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light).									
Demonstrate a solid understanding of food chains as systems in which energy from the sun is transferred to producers and then to consumers.									
Demonstrate a solid understanding of food chains and food webs.									
Identify how one species in a food chain or web affects other species in both positive and negative ways.									
Identify animals that are carnivores, herbivores, or omnivores.									
Describe structural adaptations that allow plants and animals to survive in specific habitats.									
Explain why changes in the environment have a greater impact on specialized species than on generalized species.									
Describe ways in which humans are dependent on natural habitats and communities.									
Identify the following features of a few habitats of personal interest.									
• identify a food chain within the habitat									
• describe the environmental features of the habitat									
• identify a few key species and how they have adapted to the environment									
• identify how humans have impacted the environments in both positive and negative ways									
OTHER									
Follow safety procedures.									
Communicate their understanding with others in a variety of ways.									
• group discussions									
• student participation in small groups									
• student notebook and reflection pages									
• student teacher conferences									

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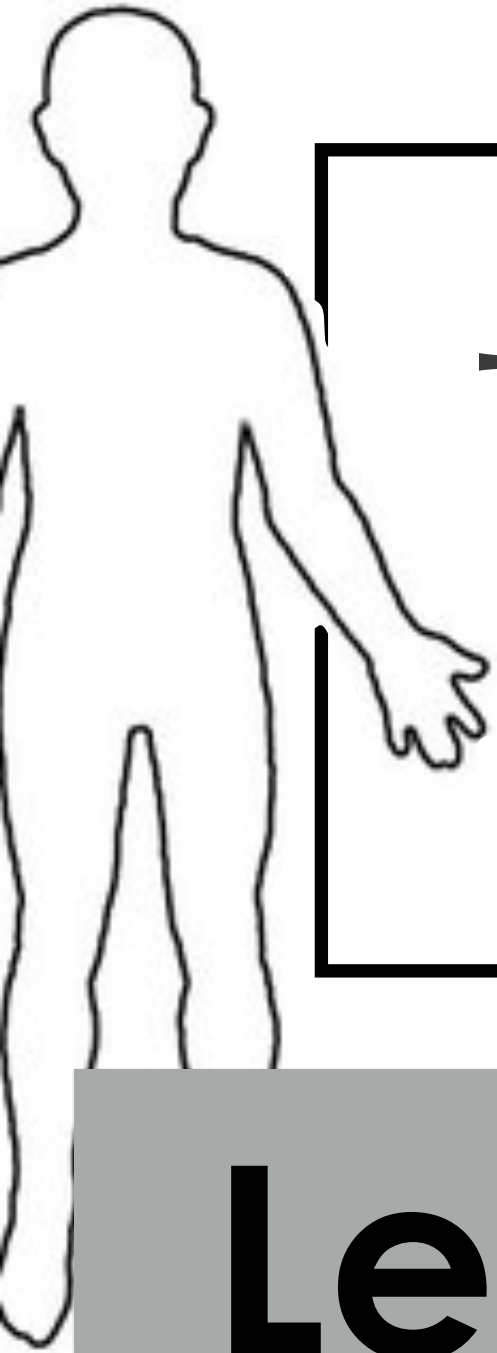


Grade 4

Teaching Plan

Habitats

Lesson #1

(4) L1

LESSON #1

(4) L1

All pages through this resource are marked similar to above to show the Grade (4) and Lesson Number (L1).

LESSON #1

Preparation:

Grade 4

- Show students a collage of pictures handed out on Picture Cards from the Wonder Wall and have them tell you what they see and what they notice.
- Assess their background knowledge on the topics, their interest levels on certain aspects of the unit, and allow them to ask and record questions they might have will help to lead the discussion and the unit.

Part A

Students will complete a Diagnostic Assessment that allows them to explain what they know about habitats and animals prior to beginning the unit.

Part B

Ask students to Draw a Picture of a place where an animal lives. Ask them to include as many details and other animals that they can think of that live in the same area.

- Describe your picture.
- Where in the world would this animal live?
- What kind of things would this animal need to survive?
- What other animals live there?
- What is a habitat?

Then, have students share their thoughts about what they saw in their diagnostic assessment.

Assessment:

In this activity you will identify and assess a student's background knowledge.

- Do they have knowledge of various animals and where they live?
- Which habitats are students more interested in?

Accommodations:

Provide students with discussion questions and prompts before the activity to allow them to prepare their answers to share.

Provide students with discussion sentence stems to help them actively contribute to the conversation.

Notes:

For more information on knowledge-building circles please see the resources found below:

www.teachingwithinquiry.com
www.madlylearning.com
fb.me/madlylearning


mouse

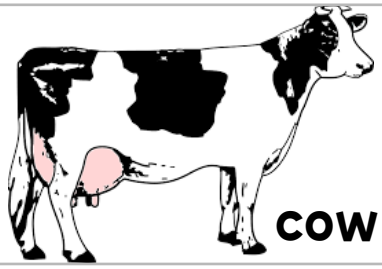

shrew


guinea pig


squirrel


beaver


zebra

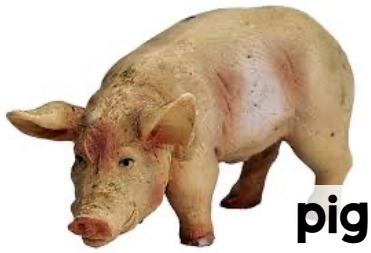

cow


giraffe


deer


sheep


hippopotamus


pig


dog


leopard


bear

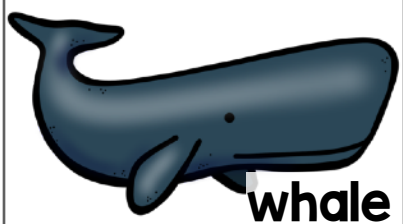

racoon


skunk


hyena

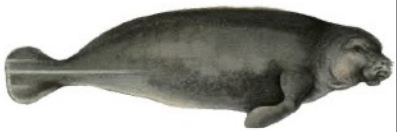

walrus


seal


whale


otter


dolphin


manatee


polar bear


bat


lemur


ape


monkey


human

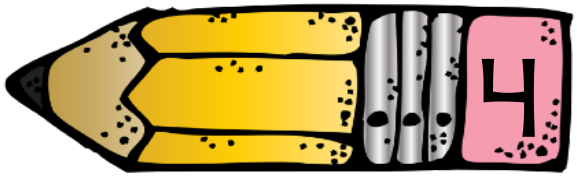

gorilla


orangutan

Draw a Picture

Where do the animals live?

Diagnostic Assessment



Answer the following questions to the best of your ability. Do not worry if you do not know the answers. Just write what you know or what you think might be the correct answer.

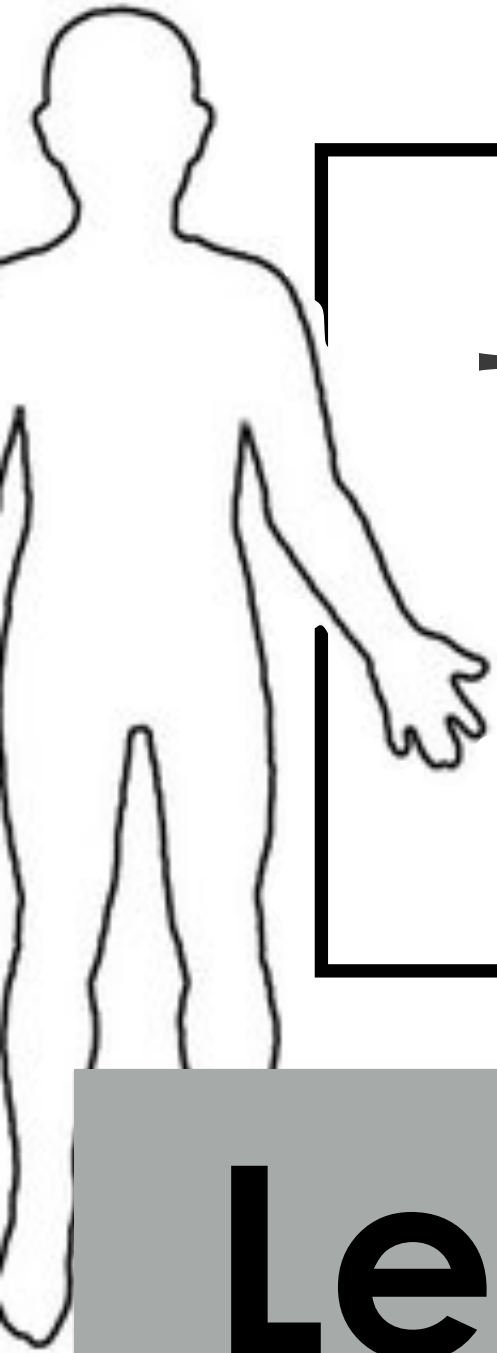
What is a habitat?

What elements do habitats need to support the animals living there?

What are different types of habitats around the world? Give an example of three types of animals living in each habitat.

How can humans protect habitats?

SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #2

(4) L2

LESSON #2

Preparation:

Grade 4

- Prepare enough game Hare By Nature game boards for students to play in groups. You can cut out all of the pieces and have them ready in an envelope for students or you can have them do this.
- Prepare a model game board for yourself to show students how to play. You may consider playing this game yourself prior to playing it with students to become more familiar with it.

Part A

Students will read the Instructions for Hare by Nature.

Review the rules of the game and model for students the various roles in the game.

Once done, have students complete the Hare By Nature Student Reflection Page.

Part B

With a partner students will play the a game of Hare by Nature.

Students can use the playing pieces provided or they can use counters from the classroom.

Students will need about 30 food/water, 5 foxes, and 24 hares. This game is similar to checkers and the goal is for students to realize that both people need to work together to keep a balance in the habitat. Too many of one thing will make it an unbalanced habitat and the game will become unfair or end quickly. The goal is to make their habitat last the longest and be sustainable.

Assessment:

By the end of this game students can:

- identify the need for a balanced habitat
- identify the positive and negative consequences of an unbalanced habitat
- describe what happens when one part of the food chain is removed

Accommodations:

If you need a more hands-on lower prep way to have students participate in this game, you can recreate this in DPA or Phys. Ed .
Like the game Octopus, you need a fox for every 10 players and an equal number of hares and food. Hares start on one side of the play area while the food scatters, sitting within the play area. When the foxes in the center yell, "Food time!" the hares must cross the playing area and grab some food and take it to the other side. If a hare is caught, it becomes a fox (foxes may only catch one). If a food and hare make it to the other side, they are both hares. Foxes and hares who don't catch anything become new food. The game continues until it can no longer be played. You can adjust the ratio starting roles, as necessary. Track and reflect on the game throughout the play, chart the results every x number of rounds.

Notes:

Cross strand to Math, Phys. Ed, Language: *To combine these two lessons together, have students start with the same activity but complete different products at the same time. First, have all students play the Hare by Nature Game in Phys. Ed and have one group of students use the information to graph the data in a histogram while the other group reflects on the habitat implications. The students can use the information as a language activity and sequence the events from beginning to end.*

Hare by Nature

The goal of this game is to create a long-lasting and sustainable habitat for both of the animals that live there.

What will you need

- 30 food/water pieces
- 5 foxes
- 24 hares
- 1 game board

Set Up

- place two foxes in the middle of the board game
- start with six hares in their shelter spaces on either end of the board
- place the 30 pieces of food/water cards on the board in any of the spots
- teacher will choose who are foxes and who are hares.

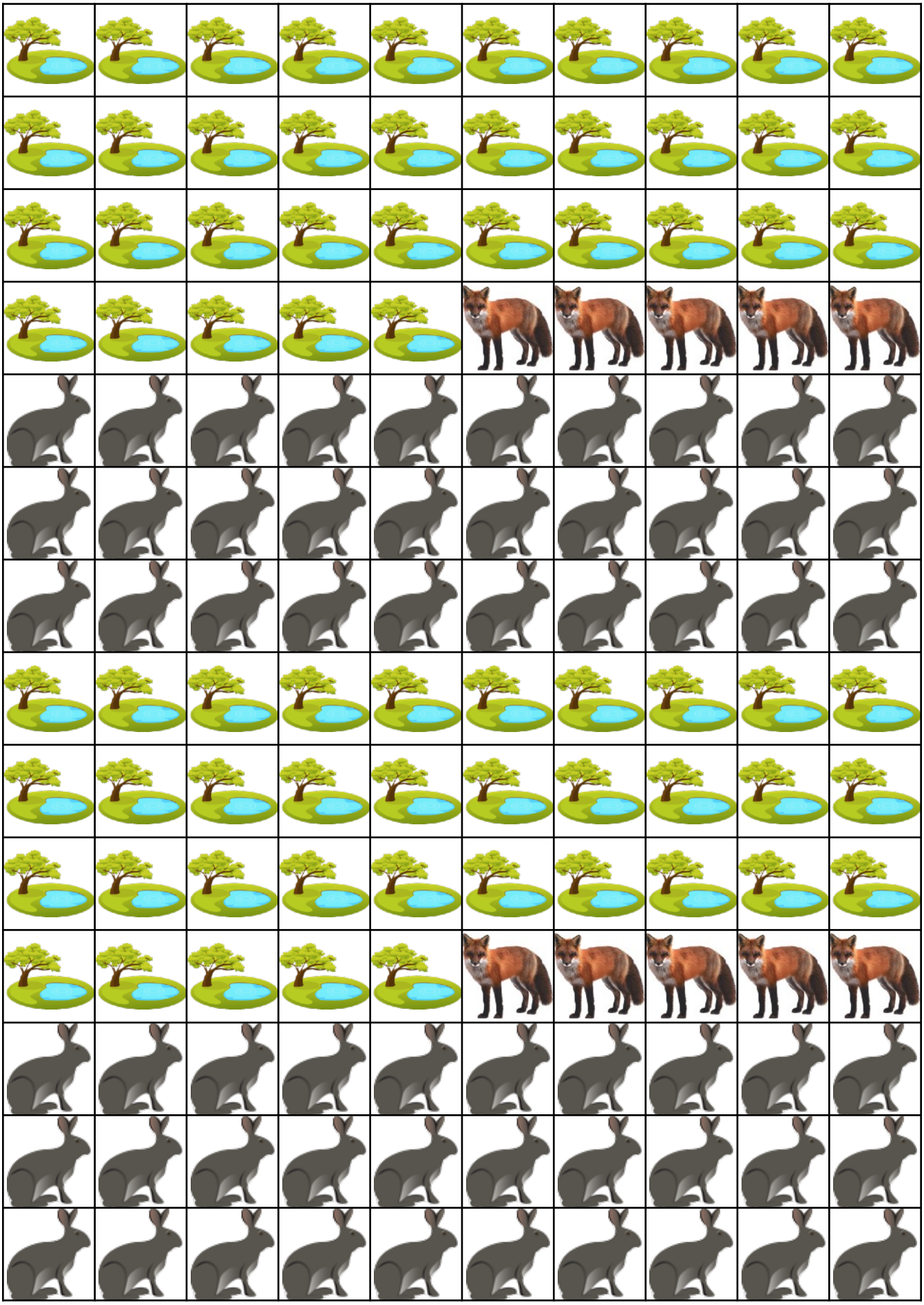
Foxes

- If you are a fox, you start with two playing pieces in the middle of the game board.
- In order to survive in your habitat, you must catch and eat some hares.
- You will move around the board trying to catch and eat the hares
- you may move up to **3 spaces** at a time (right or left only, not diagonal) .
- You have **3 turns** to *catch a hare*. If you do not catch a hare for your pack (group of players) in 3 turns, one of your foxes will die. Use the circles at the bottom of the game board to track your turns.
- After you **catch 5 hares** your population will grow and you will *earn a new fox* for your pack.

Hares

- Start with six hares.
- Place your hares anywhere on the shelter spaces at the side of the board. The shelter protects you from the foxes.
- To begin, you must choose one of your hares to leave the shelter and go get food/ water.
- Hares may only move one space at a time.
- When you land on a food or water card, you add a new hare to your shelter.
- If you do not land on a food/water card, one hare from your shelter dies.
- You might eventually run out of shelter spaces to place your hares. When this happens, you have run out of space so the last hare to have moved will die.
- Whenever a hare dies, three food pieces are added back into the game in any available space.

The game ends after 10 minutes of play time, or when each player has no more moves left.



Hare by Nature

(4) L2

Student Reflection

Hare by Nature

1. Describe how your game worked out when you played it.
   - How long did the game last?
   - What happened when you ran out of one of the elements of the habitat (such as hares, foxes, food/water, or shelter)?

2. How might you change the way you played to make your habitat live longer?

3. All habitats need to be balanced. Describe how you know this to be true after playing this game.

4. Would you conclude that you would have been more successful at this game if it were a competitive game or a cooperative game?

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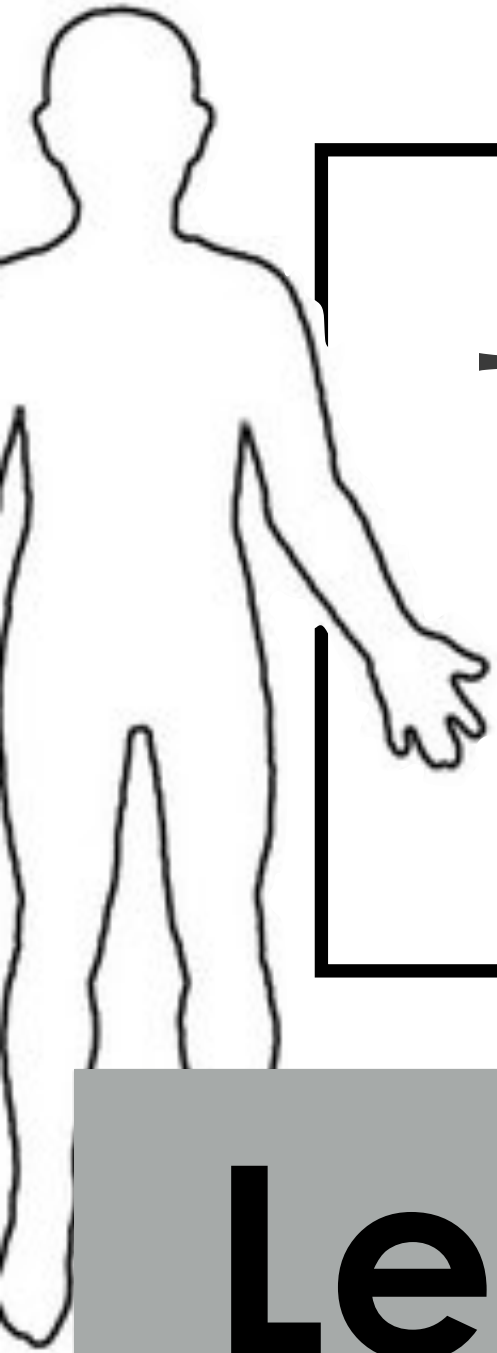


Grade 4

Teaching Plan

Habitats

Lesson #3

(4) L3

LESSON #3

Preparation:

Grade 4

- Who Eats Who - Cut out the Food Chain Task Cards prior to the lesson.

Part A

Who Eats Who - Have each student choose a Food Chain Task Card or two. Have them read the clue on the page to themselves. Ask them to think about what animals or plants might be predators or prey to their animal/plant card.

Create food chain groups. Students will find the other members of their food chain groups.

Students will share with others what is in their food chain. Students should discover that there are some similarities between food chains. They all have decomposers, producers, and consumers (herbivores, omnivores, carnivores).

Part B

Students will complete either the Food Chains Interactive Notebook activity or the Reflection Page explaining what they learned about food chains.

Assessment:

- Do students understand what a food chain is?
- Do students understand the roles of various plants and animals from within their food chain?

Accommodations:

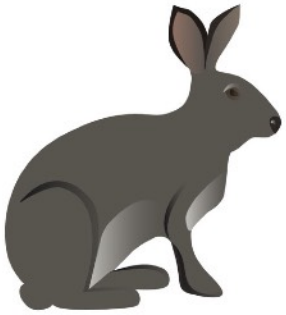
- Facilitate the food chain cards in a more structured way. Place all of the cards face up in the center of the circle. Ask students to look at the cards and suggest ways to sort them based on what they eat. "Who gets food from the sun?", "Who only eats plants?", or "Who eats other animals?" Once sorted, ask a student to pick a plant card and read the clue. Ask the next student in the circle to pick the card in the center that best describes who eats that plant. Continue this way, beginning with the plants until all the cards are selected.

Notes:

Find the Food Chain

grasses

I get my energy from the sun and my nutrients from the ground, thanks to the help of some decomposers.



rabbit

The green, green grass is very tasty. I just have to watch out for the sneaky fox.

eagle

As I soar through the air, I keep a lookout with my sharp eyes for a yummy fox in the meadow.

fox

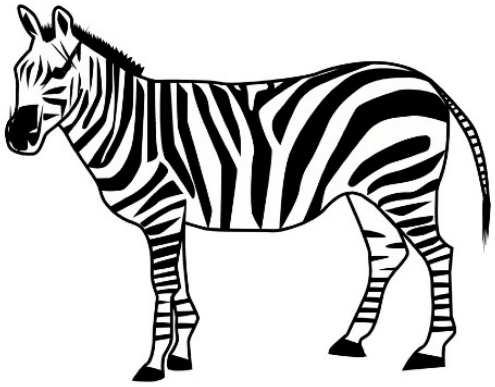
Rabbits are a tasty treat when I really want to eat. But I have to keep an eye on the sky and avoid that eagle.

Find the Food Chain

.....

grasses

I get my energy from the sun and my nutrients from the ground, thanks to the help of some decomposers.



.....

zebra

I like taking it easy and eating grass with my friends. I just have to watch out for that sneaky hyena.

.....

lion

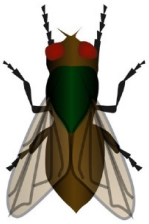
Hyenas are one of my favourite meals.

.....

hyena

I have to be patient, but eventually I will get my zebra meal. I just have to remember to watch out for that lion.

Find the Food Chain



.....

fly

I buzz around, but I am always watching out for the frog.

.....

frog

I live in the grasslands and snack on flies.

.....

owl

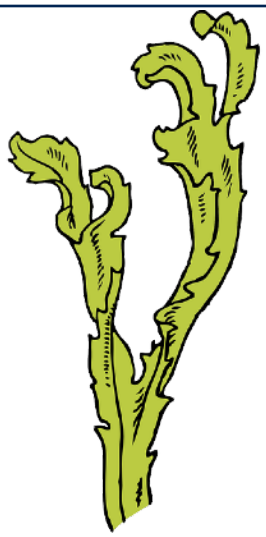
Mmmm… when I get really hungry I eat a slithery snake.

.....

snake

I slither through tall grass looking for tasty frogs to eat.

Find the Food Chain



.....

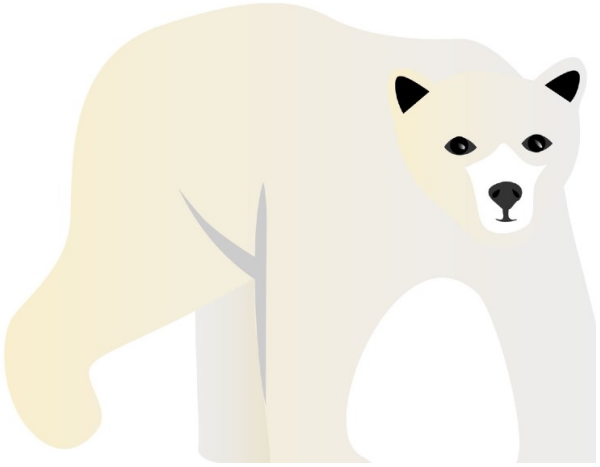
algae and seaweed

I wave and flow with the current in the water. I am a favourite snack of the fish.

.....

fish

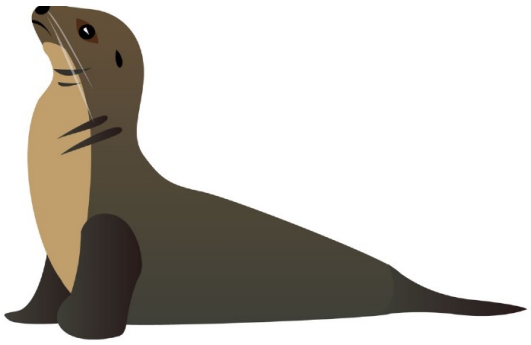
I swim and swim and snack on algae and seaweed. I try to avoid that sneaky seal.



.....

polar bear

I am a great hunter and my favourite meal is the tasty seal.



.....

seal

I dive and swim hunting for fish. If I can avoid the big polar bear it is a good day.

Find the Food Chain

.....

bamboo

I grow tall and strong and am a favourite treat of the panda.

.....

panda

I love snacking on bamboo. But I have to be careful, that cheetah looks hungry.

.....

tiger

I am a smart hunter and will wait and wait. I look for the cheetah: it's my meal of choice.

.....

cheetah

I hunt and search to eat the giant panda. But I try to avoid that tiger. He has sharp teeth.

Find the Food Chain

.....

acorn

I'm an acorn small and round lying on the forest ground. The squirrel will often snack on me. I'm a tasty nut, you see.

.....

squirrel

That tasty acorn is my treat. I really want to eat, eat, eat. But that sneaky fox—he might find me. I'm his favourite snack, you see.

.....

wolf

I'm a wolf who hunts his prey. With my pack, we hunt all day. With my team, we dream of fox. When we catch one, we lick our chops.

.....

fox

I'm a fox with a red coat that's nice. I hunt for squirrels because they taste so nice. I watch for wolves who might eat me. They like to hunt and snack on me.

Food Chains

Decomposer
Role: _____
_____
_____
_____
_____
Examples: _____
_____
_____
_____

Producer
Role: _____
_____
_____
_____
_____
Examples: _____
_____
_____
_____

Consumer (Carnivore)
Role: _____
_____
_____
_____
_____
Examples: _____
_____
_____

Consumer (Herbivore)
Role: _____
_____
_____
_____
_____
Examples: _____
_____
_____

Consumer (Omnivore)
Role: _____
_____
_____
_____
_____
Examples: _____
_____
_____

1) Fill in each petal with the correct answer.
2) Cut around the outside and put glue on the back of the middle section.
3) Fold the petals towards the middle.
4) Draw an example of each section in the food chain.

****

<u>Copy the sentences below onto the correct petal above.</u>

They eat other animals.
They eat both plants and animals.
They eat plants.
They help to break down dead, organic matter in the soil.
They take nutrients from the soil and energy from the sun.

Food Chain Reflection

My learning goal for this lesson was:

_____

_____

What I learned:

_____

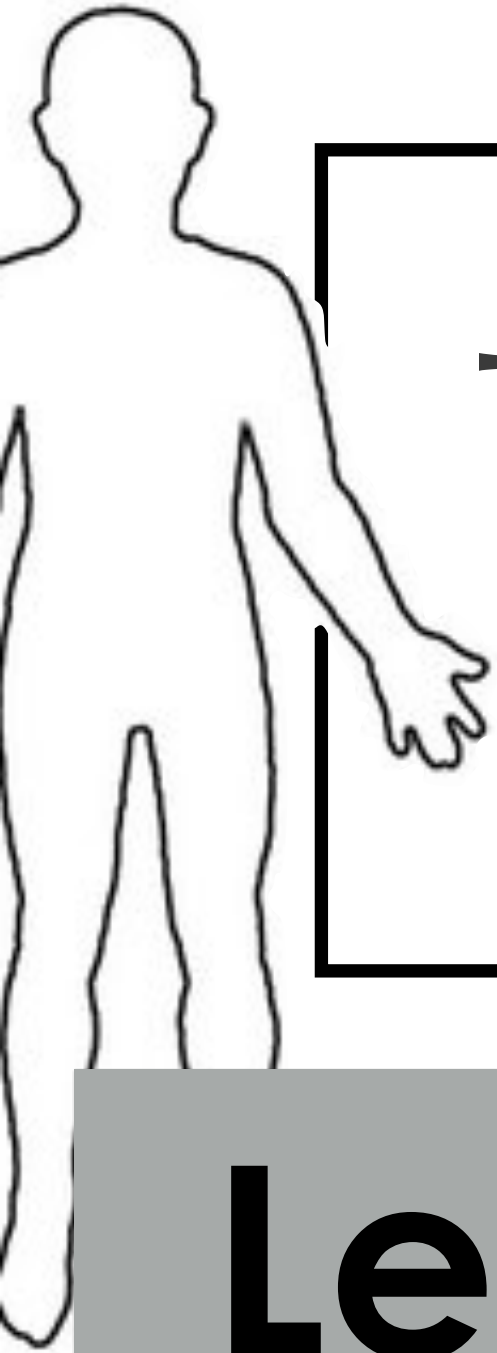
_____

_____

_____

Proof:

SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #4

(4) L4

LESSON #4

Preparation:

Grade 4

- Prepare research baskets for students or access to technology to help them research.
- Prepare Animal Adaptions, Research Guides, and Task Cards.

Part A

Have a discussion via a knowledge-building circle with students about adaptable animals and specialized species. Pose the following style of questions to students.

Try to use familiar animals or animals in which students as a group have shown special interest.

- How do animals handle changes to their environment?
- Why do some animals only live in certain areas?
- Why do _____ live in _____ habitat and not _____ habitat?

Part B

Students read the article Animal Adaptations, which is about different animals and how they have adapted to their environment.

Students will follow the Research Guide to help them discover more about their chosen animal.

Either provide students with Task Cards or have them conduct their own research to find the information they are looking for.

Assessment:

- Do students understand what an *adaptation* is?
- Do students understand that a change to one element of an ecosystem has negative effects that impact more than one species?

Accommodations:

- Provide students with key terms as a reference for their use.
- Highlight key sections of the text to draw their attention to the most important parts of the text.

Notes:

Grade 4 Lesson *- This is a key lesson to help students follow their interests and let them lead the focus of this lesson. Depending on your student groups, students may show more interest in one animal over another. For this reason, I have not included all animals. I have provided task cards for some of the most familiar animals, but I encourage you to allow students to follow their own interests. Most animals have specific books about them that are easily found in local libraries. Many websites will have valuable information, too. This mini-inquiry will help students prepare for their final inquiry focus. You have been provided links to some sites that will help students to find the answers to their interests.*

Animal Adaptations

How animals change to meet their needs in the environment.

Have you ever wondered why a dolphin lives in the water and not on land? No, you probably have not. You know that an animal, such as a dolphin, belongs in the water. It doesn't have legs to walk on land. It has special characteristics that lets it live in water: fins, echolocation, and a snout that allows it to eat underwater.

Animals cannot live in every environment on Earth. Animals live where they are successful. Characteristics that make them special, unique, and make it possible to live in their habitat are called adaptations. Over time, animals who live successfully in their environment continue to live and thrive. Animals that do not adapt and change to live in that environment are not successful and die off.

Animals have special features, or characteristics, that are necessary for survival. Many of these characteristics have adapted to make the animal more successful in their habitat. Many animal adaptations are related to:

- how they eat
- what they eat
- how they move
- body structure
- their role in the food chain

Can you think of some animals that have special characteristics that make them uniquely successful in their habitat?

Camels live in deserts and can go a long time without water.
Polar Bears have thick skins that allow them to live in cold arctic areas.
Narwhals have a pointed horn that allow them to break through ice in arctic waters.
Zebras have stripes so that when they stand within their herd, it is much harder for predators to tell one zebra from another.
Poison Dart Frogs have bright colours to protect themselves by warning predators of their poison.

Animal Adaptations

How animals change to meet their needs in the environment.

Land and Weather

Human Impact

Animals and Adaptations

Woodpecker

Woodpeckers have many adaptations which make them successful within their habitats all over the world: wooded areas. To help them eat, woodpeckers have a special beak. Their beaks are very strong and powerful. Their beaks are shaped like a chisel, which is good for drilling into trees in search of bugs to eat. They also have a long, sticky tongue to help them catch the bugs inside the holes that they drill. Woodpeckers live in groups. This helps them to work together to be more aware of predators. Their bodies have adapted to help them peck wood. They close their eyes when they begin pecking wood. The bones in their heads are spongy to protect their brains from all the force of the hammering.

The polar bear is a strong and fierce bear that lives within the Arctic region habitat. Polar bears are good hunters and have many adaptations to help them catch their prey. They have strong muscles in their legs that allow them to be excellent swimmers and runners. They also have very sharp claws and teeth to help them catch and eat their prey. Because polar bears live in the Arctic with such cold weather conditions, they must have adaptations that allow them to stay warm. Polar bears have a thick layer of fat between their fur and muscles which acts as an insulation to keep them warm. Another challenge is that their habitat is covered in ice. Polar bears have fur on the bottom of their feet to help them grip the ice better. The fur also helps to keep their feet warm when walking on the ice. Polar bears use the sea ice as a platform for hunting their prey. However, as the world is warming up, this is changing the habitat and they are losing their ice platforms. This is making it hard to get to their prey. Polar bears are now endangered, and they are struggling to adapt to this environmental change.

Polar Bear

Camel

Camels are unique animals that have adapted well to the difficult environments they live in. Camels live in the desert regions of the world. Their bodies have adapted in many ways to help them be successful in their environment. They have large feet to help them walk better on sand. This lets them spread their body weight out to prevent them from sinking in the soft sand. Their bodies also need to be able to cope with the very high temperatures in the desert. When humans get too hot, their bodies begin to sweat to help cool them down. Camels do not need to sweat, which helps them to store the sweat as water in their bodies. Many people think that a camel's hump stores water. This is not true. A camel stores its body fat in its hump. The fat acts as insulation. Because it is not stored around the body, it is easier for the camel to stay cool. Living in an environment with lots of sand, the camel needs to protect its eyes from the sand. The camel has bushy eyelashes and lots of hair in its nose to keep sand out.

Elephant

Elephants are well-loved animals that are native to the habitats of Asia and Africa. Elephants have some of the most unique features for a large animal. These features help them to survive in their habitats. Elephants are very large animals with short necks. Trunks allow elephants to reach things that they wouldn't otherwise be able to reach: water on the ground and food high up in trees. Their trunks also have the ability to make noise. These sounds are used as signals between other elephants to communicate or warn against predators. Elephants use trunks to spray water or dust onto their bodies to keep cool. Elephants have very large tusks, which are an important feature. These tusks help elephants scrape the bark off of trees so they can eat it. Tusks also help elephants dig up water and nutrients from underground. They also have large ears. Elephants, like camels, do not sweat. Their large ears have adapted to help fan themselves to keep cool. Elephants who live in African grassland habitats have larger ears than Asian elephants who live in the jungles. Larger ears help cool them off in the hotter temperatures. Elephants are great at adapting to changing environments. However, they can be destructive by changing their environment to suit their needs. They often interfere with human development and crops, which can make them a nuisance to local farmers.

Sharks are admired predators of the ocean. They are feared and loved by many people. Sharks have many adaptations that make them successful ocean predators. Sharks are able to move quickly through the water, making it easy to catch and eat their prey. Their bodies are shaped like an arrow at both ends. This helps them to move fast and quietly through the water. Sharks do not have bones. Instead, they have cartilage, like in a human nose. This makes them lighter, more flexible, and quicker in the water. Sharks are also great hunters because they are good at sensing their food. Their snouts can sense changes in the electric field that is created underwater by living things. Sharks use the sensors in their snout to detect very small changes to find their prey. This is helpful in dark or murky waters where they cannot rely on their vision to help them see their prey.

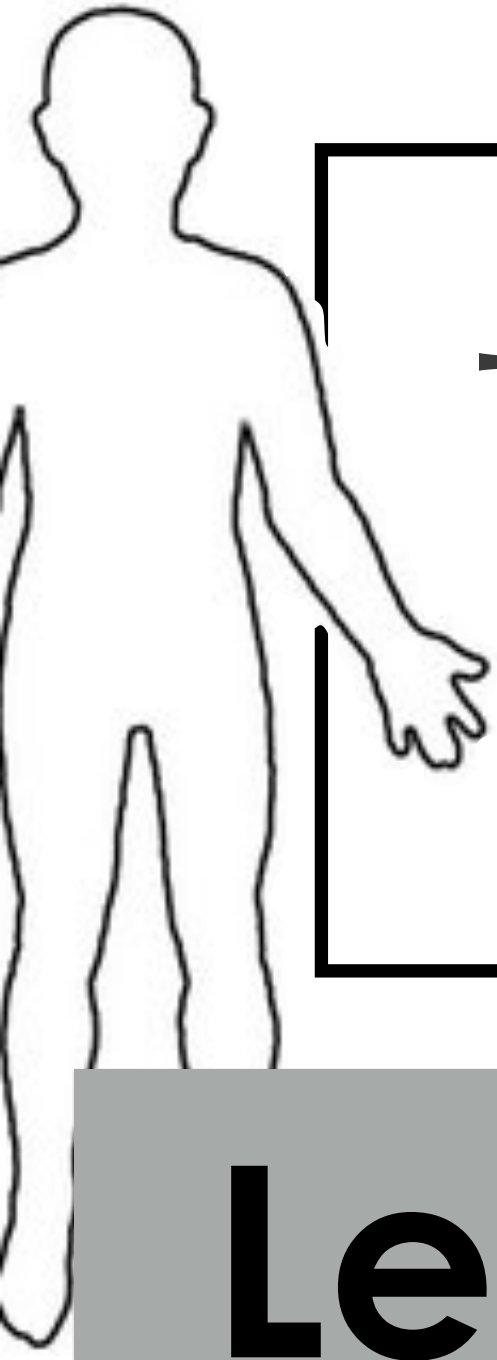
Shark

Sharks also have very sharp teeth that help them eat their prey. There are many different types of sharks. Many of them have different shaped teeth depending on the type of food that they eat. Sharks also have teeth that grow back when they fall out. Their body is perfectly camouflaged, so when looking at them under the water, their darker colours blend in with the colour of the deeper, darker ocean.

Mouse

A mouse is a very interesting animal. Some people are afraid of them and scream when they see them. Other people keep a mouse as a pet. Mice are very adaptable animals, which often makes them pests. Mice are not picky eaters and adapt easily to eating in different environments. Mice will eat whatever they can find. They forage and eat about 15-20 times per day. This is why they can be so destructive and quite a nuisance to people. Mice that live in forests eat grains and seeds while mice that live near humans eat leftovers and garbage. Mice do not live for a very long time, so they have adapted to having a lot of babies very quickly. This helps their population to grow very quickly. Mice also have the ability to change the thickness and colour of their coat to suit the environment. Although mice don't really like living in cold temperatures, they have become very good at finding safe, warm places to build their nests. Sometimes, that even means within your homes. They seek out just about anything to help them make their nests for their large families. This means that they can be very destructive in a home. Mice live in families. They work together to forage for food near their nests. They often stay in one area close to their nests. They are very sensitive to changes in their environment, quickly noticing changes that help protect them from predators. Their whiskers are very helpful with this and help them feel and sense these small changes.

SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #5

(4) L5

LESSON #5

Preparation:

- **Grade 4**
- Prepare research baskets for students or access to technology to help them research.
- Review Teacher Notes for ideas how to follow grade 4 lessons.
- Prepare the articles Life in the Ocean and Research Organizers for students.

Part A

Life in the Ocean: The Arctic Ocean

Model how to extract information from a research article or website to find the information that they need. Students will need to focus on skimming and scanning, point form/jot notes, and avoiding plagiarism.

To link to digital research, please have students follow the QR Code to the LiveBinder.

Part B

Centre Day #1

Read the Teacher Notes to better understand how to conduct your research centres for the next several lessons.

Students will complete their Research Organizers based on the research they gathered in their groups. You may choose to use one of the two research organizers provided.

Ensure students have a think-pair-share to share the information that they found with the others from their group.

Students will put their research organizers into their notebooks.

Assessment:

- Can the student apply what was modelled by conducting their own research notes and extracting important information?
- Is the research collected by the student relevant and thorough for student research?

Accommodations:

- Print resources for student research.
- Students can rely on the facts from the additional research package.

Notes:

This lesson may take more than one period. It is suggested that you do the first half on day one and then the second half on day two.

Teacher Notes

Guide to the Following Grade 4 Lessons

Dear Teacher,

The next few lessons for the Grade 4 students can be completed in multiple ways, depending on your students' familiarity with inquiry. This unit is normally done either as the first or second science unit in the school year, so this means that students need much more support in a guided inquiry. For ways to structure the centres of the following lessons, please see the centres ideas at the end of this three-page introduction.

Student Skills	Teacher Comfort Level
• independent research skills: both text and internet research skills • independent work skills • creative and flexible thinking skills • leadership skills • strong group work skills	• beginner - teacher wants a high degree of structure and sequence to lessons; the teacher is the *leader* • comfortable - teacher wants a mix of student voice and choice within a structured environment; the teacher is the *guide* • experienced - teacher releases control of learning to students and acts more as a *support*

Beginning in Inquiry

If your students are beginners, I suggest that you use a gradual release model and look at the first habitat as a modelled inquiry. Students will watch as you look at the research provided and use it to extract information. Purposefully showing students that the information that they need is interspersed in the reading and not laid out exactly as they need it is an important skill. Work through the page in the following sequence; it is important for students to see you do this. Be very explicit with each step you make and why, so that they can see how you do it with the hope that they can replicate this.

1. Look at your **Research Notes Guide** to remind yourself what you are looking for. Then skim and scan the article for key words to see if this article has the correct type of information. (It does, but this is an important step—especially if you are going to have them complete independent research on the Internet.)
2. Read the whole **Life in the Ocean article** through one time, without making notes.
3. Work sentence by sentence and ask yourself if this information belongs in the **Organizer**. If it does, show them how to write this in *point form notes* without copying word for word out of the text. (Highlight that copying word for word is considered *plagiarism*. I tell my students that the author does not own the fact but does own the way they put the words together in a sentence.)
4. Record the information in your own words on the organizer.

Teacher Notes

Guide to the Following Grade 4 Lessons

As you move forward through the remaining centres, gradually release your control on the centres—moving from modelled to shared inquiry where you do it together with your students, then to small groups, and finally to independent work. As students begin to do more with their partners, you can introduce adding in additional research from other texts and the Internet. When introducing Internet research, talk to your students about search terms and how to use Google. To get started, I would recommend using the kid's version of Google, Kiddle.co.

Comfortable with Inquiry

When your students are comfortable with research skills, then you can approach the following activities as rotating centres. Students in groups can work at one centre at a time. Groups can rotate through the different habitats, learning about the various features and completing the research guides. If you package the research pages together, then students can complete these as a booklet. Additional research can be obtained through print books and Internet sources.

Experienced with Inquiry

When your students are more experienced with inquiry, then the *centres* can be done as independent study. Students can complete more in-depth research on one or two of the habitats, then share their learning with their peers to teach others. Students can choose the habitat in which they are most interested. Included in this could be extensions, like looking specifically at a food web/chain from this habitat and researching the animals and their relationship to the environment. Students or teachers at this stage in their inquiry journey can use the resources provided to form their own project or goals for inquiry. More control about learning goals and aims of student learning are led by the students and supported by the teacher. These authentic learning tasks will be more engaging for students, but both the teacher and the student group will need to be ready and experienced with this type of learning before beginning. This is the goal for many, but I caution teachers from jumping right to this stage. Inquiry learning is a process, and the necessary research skills, independent work skills, and learning skills must be present before being able to get to this stage.

Inquiry is a journey and wherever you are on your own inquiry journey as a teacher is an okay place to be. Start with one inquiry task and with every new experience release a bit more control to students, letting them lead. This happens over time, not overnight.

Teacher Notes

Guide to the Following Grade 4 Lessons

The following are suggestions about how to structure the learning in the classroom. Many of these suggestions can be used at any stage of inquiry, depending on the amount of control released to students or teacher-led.

1) **Student Inquiry Centres** - With an Internet-connected device, link to LiveBinder and use the provided articles. Centres can be set up and students can choose which centre to go and learn from each week. This is easily differentiated as you can establish individual student goals regarding how many habitats they can explore.
2) **Genius Hour Action Plan** - You can have students use the articles provided as a jump-off point to learn about a few selected habitats of personal interest. They can then explore these habitats more in depth, looking at more specifics, such as studies of animals within the habitat, food chain, threats, etc. Students can eventually develop an action plan to determine either how to protect this habitat or an animal within the habitat.
3) **Traditional Centres** - Students can use the articles provided to conduct simple research about a variety of habitats and create a mural of the world with a few of the various habitats and features on it.
4) **Carousel** - Students can learn about 2-3 different habitats using the articles provided as well as any other additional resources contained within the school. They will become the expert about their chosen habitats. Students can then be responsible for teaching others in their classroom about their expert habitat areas.

As you can see, this unit allows for many possibilities. The layout of the lessons here may not necessarily the teaching approach that works best with your students. However, the materials that you will require to get started are all contained in this unit. It is highly recommended that you provide students with other data sources as well, although this is not always necessary.

This collection of lessons is designed to support student inquiry. Teachers are not expected to gather all the resources for students. Students need to take ownership of their own learning and teachers will assist in guiding their students' learning.

The following centres lessons and materials are provided for traditional centres or inquiry centres. Please modify your delivery method to suit the needs of your students.

Grade 4 Centres

Use this guide to help you organize your centres for your students.

Set Up:

1. Gather research materials for student research centres. Research can be gathered using the resources in the LiveBinder. Each resource website can either be printed or used digitally for student use. Additional research can be found as a bonus in bundled purchases or can be purchased separately from my TPT store: Grade 4 - Habitat Research Articles. Please check your download file prior to purchasing this additional unit. Additionally, you can use other resources found in textbooks or the library.
2. Put your research into research baskets or containers.
3. Attach the group labels to each bin.

Grouping Students

Group students in mixed ability groupings. Ideal groups are of 4-6 students. Students follow the Centre Rotation Guide to move from each centre per lesson.

First Lesson

A sample research page is provided in this resource as a guide for teachers. Use this to help you model for students how to use and complete the organizer. Model this lesson for students to show them how to research. This can also be done cross-curricular during your language program.

During Centre Rotations

When the Grade 4s are working on their centres, meet with one or two groups for about 10-15 minutes each. Check in with them about their research, ask them what they have learned, and check their research progress. Identify students that may need additional research support or reteaching.

Duration

These lessons can be completed in one period or extended over two 50-minute periods. Timing of these lessons varies between groups of students, subject allotments per week, and classroom timetable. Use your professional judgement to time how long each lesson will take for you and your students to complete.

Grade 4 Centres
Rotation Schedule

	Centre Lesson #1	Centre Lesson #2	Centre Lesson #3	Centre Lesson #4	Centre Lesson #5	Centre Lesson #6
Polar Region Habitats	1	2	3	4	5	6
Desert Habitats	6	1	2	3	4	5
Tropical Rainforest Habitats	5	6	1	2	3	4
Ocean Habitats	4	5	6	1	2	3
Coniferous Forest Habitats	3	4	5	6	1	2
Grassland Habitats	2	3	4	5	6	1

Notes

**This rotation schedule will still work with less than 6 groups. If your students have more experience with research, they can choose their own rotation based on interest. If you have less experienced students, you can use more guidance with research and do this together. **

**The research at this stage is just building knowledge and understanding of the various habitats while developing research skills. Students will choose a habitat and look into this in more detail later. **

Animal Habitats Centres

Polar Region Habitat

http://goo.gl/5dd8gg

Animal Habitats Centres

Desert Habitat

http://goo.gl/yS5Lu6

Animal Habitats Centres

Tropical Rainforest Habitat

http://goo.gl/jJ2uyh

Animal Habitats Centres

Ocean Habitat

http://goo.gl/igVXqa

Animal Habitats Centres

Coniferous Forest Habitat

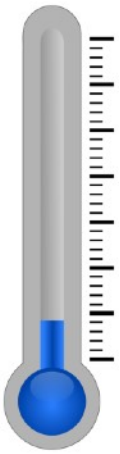
http://goo.gl/tx1Dai

Animal Habitats Centres

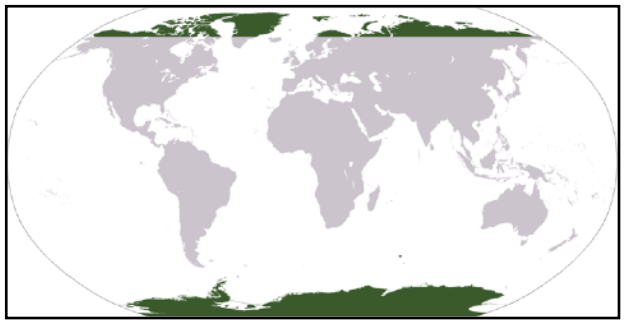
Grassland Habitat

http://goo.gl/NBBRzo

Polar Region Habitat



The polar region habitat can be found on the top and the bottom of the globe. These places are called the Arctic and Antarctica. This region is very cold. In the winter, the Arctic region has been as cold as -50°C. Antarctica can be even colder where the lowest temperature ever recorded was -89°C. The polar region habitat has only two seasons, summer and winter. But even in the summer the ground stays frozen. The ground in the polar region habitat is called the **tundra.** In the summer, the top layer of the tundra defrosts. However, under this top layer, the ground remains frozen solid. We call the ground that is permanently frozen **permafrost.**



Even though the ground is frozen and the temperature is very cold there is still life in the polar region habitat. In the Arctic, there are millions of people that call this place home in countries like Canada Russia, Greenland, Norway, Finland, and Sweden. Antarctica does not have any people living there permanently. The only people living in Antarctica are scientists who are doing scientific research.

There may not be many people in these regions, but there are many animals that call this cold region home. The Arctic region is home to a diverse group of wildlife that has successfully **adapted** or learned how to live in the cold climate. Animals like polar bears, arctic fox, arctic wolves, and snowy owls are just some of the successful animals that live in these extreme conditions. Some of these adaptations include having thick fur, layers of fat to keep warm, white fur to blend in with the snow, and the ability to hibernate in the coldest parts of the winter. In Antarctica, animals such as penguins migrate long distances for both food and safe places to have their babies. They can go long periods of time without water or food. Most animals in the polar regions are carnivores. Most plants have a hard time growing in the cold, frozen environment. Some plants like moss, lichen, grass, and flowers are able to survive in the summer on the defrosted ground of the tundra.

Polar Region Habitat

Humans have an impact on the polar region habitat in many different ways. The polar region faces problems from pollution, climate change, the oil and gas industry, and overfishing. The polar region is getting warmer and many animals' habitats and migration routes are being lost due to the expansion of businesses into these regions.

Climate Change

In the last 100 years, the average temperature of the polar regions has increased by ten degrees. It continues to get warmer there and is increasing in temperature faster than other habitats around the world. The amount of ice that stays frozen in the summer months is decreasing as more and more ice melts each summer. This is affecting the wildlife in this region because they are losing parts of their habitat. Polar bears, for example, use the ice to hunt and live. Polar bears walk out onto the ice covered ocean to hunt for seals. Without the ice, they are separated from their main source of food. Some suffer malnutrition and starve. Since 2008, the polar bear has been considered a threatened species.

Pollution

Although there are not as many people in the polar region habitat there are still many pollution problems. Pollution is carried from other parts of the world through the water and ocean currents. When the animals in the arctic and antarctic region eat these polluted foods the toxins stay in the animal. The levels of these toxins increase in animals that are higher on the food chain. This process is called biomagnification.

Oil and Gas Industry

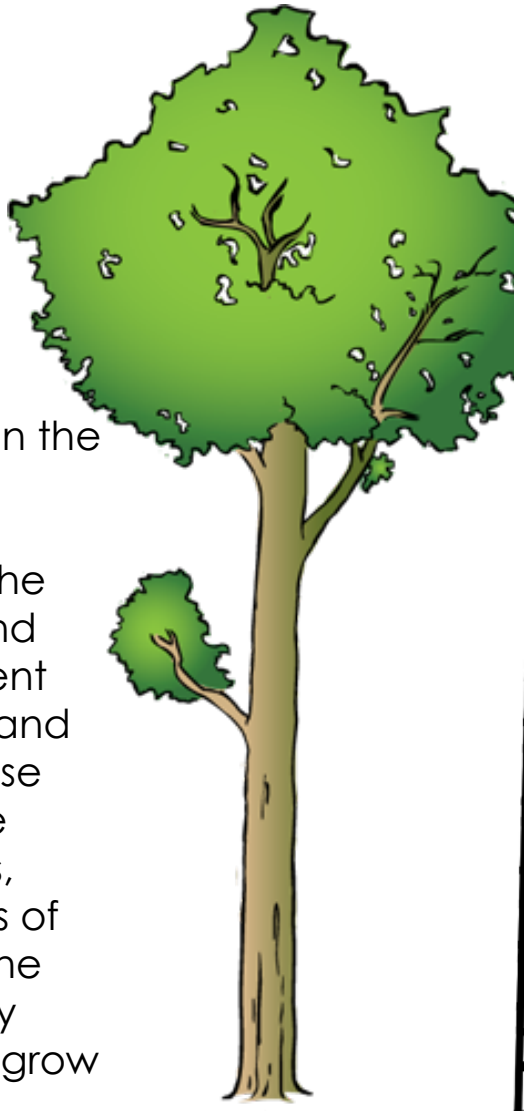
The arctic and antarctic regions are rich in natural resources such as oil and gas. As humans, we rely on oil and gas to live in our world today. Companies want to take out the oil and gas from deep under the ground in this region. However, there are some risks to this in the polar region. Taking oil and gas from this region is not easy since the ground is covered in ice. So, a lot of people and industry are needed to help get these resources. As a result, habitats are destroyed and animals are affected. Some animals lose their main habitat while other animals use the land as a pathway to migrate south for the cold months. Another problem with this industry is the potential for oil or gas spills. This has happened before in this region and has had major negative impacts on the region.

Tropical Rainforest Habitat

The tropical rainforest is a unique habitat. There are three main places where you can find tropical rainforests. You can find tropical rainforests in South America better known as the Amazon. You can also find them in Malaysia and Africa. The rainforests in Malaysia is the oldest rainforest in the world. Tropical rainforests are warm all year long. This habitat is called a rainforest for a reason. In one year a rainforest will get more than 325 cm (100 in) of rain. That makes them very wet and humid.

Many of the plants and animals in the rainforest are quite unique. Rainforests have a lot of biodiversity. **Biodiversity** means that there are many different plants and animals and they are spread out across the rainforest. This is important because it prevents disease from spreading quickly between similar plants. It also helps the animals in the habitat eat a variety of foods that bloom all year long. Rainforests are home to many plants that are used in many medicines, including medicines that help to treat cancer.

Tropical Rainforest Habitat



Trees are a key feature of the tropical rainforest habitat. The trees in the rainforest are extremely tall. They grow straight up and can be as tall as 70 m (230 ft). That is about as tall as a 25 storey building. There are three different levels of trees in the rainforest.

The tallest trees are part of the Emergent layer. The top of these trees are shaped like an umbrella and they are spread further apart. Below the emergent trees is the upper canopy. These trees are small and form a thicker layer of trees. Only the tops of these trees will get sunlight. The understory is below the canopy and generally consists of smaller tall tress, bushes, vines and tree trunks from the larger trees of the canopy and emergent layer. Finally there is the forest floor. Because of the thick tall trees it is very shaded on the forest floor. Only a few plants will grow there.

Scientists used to think that the soil in the rainforest must be very good and rich in nutrients. However this is not the case at all. The soil of the rainforest is not great. All of the rain washes away most of the nutrients and the extremely tall trees have a shallow root system. Decomposers quickly take leaves and other debris and convert it into nutrients which are quickly absorbed by the plants and trees. Plants have also adapted to the environment. Many plants in the understory and forest floor have leaves that have drip edges or grooves to help it drain the water quickly. They also have huge leaves that follow the path of the sun so they get the most sun possible. Other plants are actually vines that climb up the gigantic trees to get closer to the sun.

Tropical Rainforest Habitat

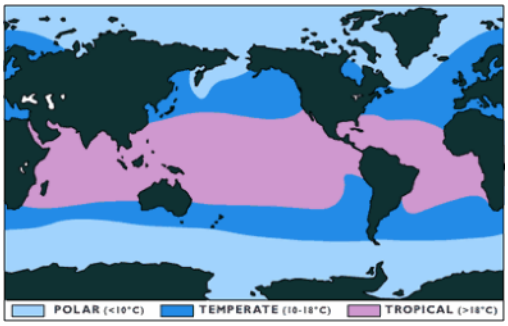
There are many animals in the rainforest. Each of the three rainforests have some similar types of animals, such as monkeys, however, because the forest is so diverse all of the monkey species are different. Animals of the rainforest have very special adaptations. Many animals have bright vibrant colours, such as the poison dart frogs. Other animals like sloths have adapted to live and climb in the tall trees. The sloth hangs in trees and moves very slowly. Because they don't move much algae grows on their fur which also helps them blend in and hide from predators. Bengal tigers from the Malaysian rainforest also have important adaptations. Their striped coat is darker than other large cats and they easily blend in with the forest floor. They also have soft foot pads that allow them to move quickly and quietly in the forest. They hunt during the day and the night thanks to their eyes being able to see well at night.

There are many threats to this habitat that are easily prevented. Humans are the largest threat to this habitat. Deforestation is a problem and logging companies often cut down many parts of the forest for profit and farm land. Over population is also an issue where too many people cause a need for more space which means less space for this habitat. Many of the resources found in the rainforest are valuable. Poachers (people that hunt illegally) can earn lots of money for a tiger pelt and other animals. Poaching continues to be a problem. Many groups are working very hard to make it illegal to purchase these animals and to help protect this very important habitat.

Life in the Ocean

The ocean is a diverse habitat that covers most of our earth. The ocean covers 71% of the world. The landscape of this habitat is just as mixed under the water as our land is above water. There are mountains, volcanos, and deep trenches. The Mariana Trench is the deepest example of an ocean trench.

Oceans are made up of salt water. This is helpful in colder regions because the water does not freeze as quickly as regular water. The salt lets the water get colder before it freezes. If you ever find yourself stuck in the ocean remember do not drink the water. The saltwater in the ocean is made up of 35% salt. This level of salt is unhealthy for us to drink. The water in the ocean does not stay still. The water in the ocean moves around the world following a current. A current describes the path that water flows in the ocean. Gravity and the magnetic pull of the earth determine how currents flow through the oceans. Currents also transfer many valuable nutrients. These nutrients are helpful to maintaining our healthy ocean habitats.



The ocean is large and has many different kinds of habitats throughout its waters. There are three main types of ocean habitats. The polar marine habitat is located near the north and south poles. The temperate marine habitat is located around the tropic of capricorn and the tropic of cancer. These temperate ocean habitats have mild waters that are not too hot or cold. Finally there is the tropical habitat. Tropical ocean habitat are found around the equator and are warmer and more colourful than the other two habitats.

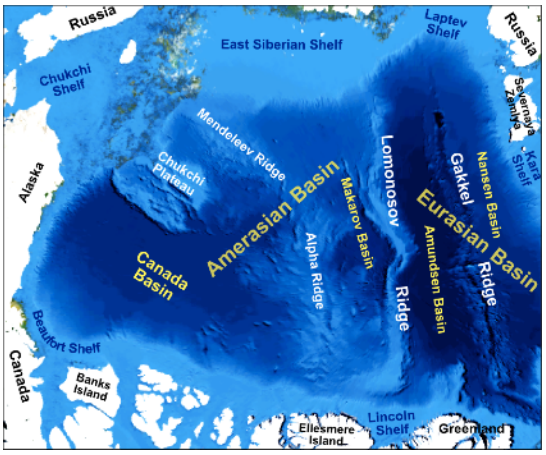
The ocean is a deep place and some areas get more sunlight than others. The ocean is about 4 km deep. Many parts of the ocean have not been explored. Animals in the deeper ocean have adapted to live in the dark with little plant life to feed on. Life in the deep ocean gets energy and nutrients from heat vents that spew a chemical that is very toxic to almost all life on earth.

Life in the Ocean

Arctic Ocean Habitat

Polar habitats have colder waters and the marine life that live there, have needed to adapt to living in colder climates.

The Arctic Ocean is almost permanently covered by ice and is surrounded by land from Canada, Russia, and Greenland. The Arctic ocean is made up of two main basins of water. A basin is like a very large bowl that holds ocean water. These basins are formed between ridges, or mountain ranges on the ocean floor. Within these two large basins there are also smaller basins.



Arctic Krill feeding on Ice Algae

Phytoplankton are the producers in the food chain. In the arctic much of the phytoplankton is frozen inside the ice where it forms into sea ice algae in the late winter or early spring. This ice algae phytoplankton, just like other phytoplankton, turns carbon dioxide in the water into sugar with help from the summer sun in a process called photosynthesis. Then the ice algae is eaten by other living things, like the arctic krill. Ice algae does not grow in the winter due to the lack of sunlight. As the summer warms up the ice the ice algae will separate from the ice and fall to the ocean floor where it is eaten by other marine life, like crabs.

Beluga whales are an example of a species that live in polar waters. These whales have adapted to life in the icy ocean by not needing a dorsal fin which makes it easier to move around the ice covered water. Belugas also have a thick layer of blubber to help keep them warm.

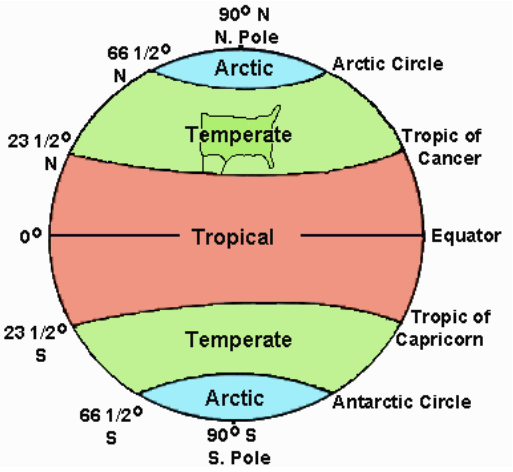
Beluga Whale

There is still much that is unknown and unexplored about the arctic ocean but the threats to the ocean caused by climate change and melting ice will have huge impacts on the ocean life in this fragile habitat

Life in the Ocean

Temperate Ocean Habitat

Another ocean habitat is the in the temperate ocean waters. This water is not too warm and not as cold as the polar waters. The temperate ocean is found around the Tropic of Capricorn in the southern hemisphere and the Tropic of Cancer in the northern hemisphere. These are the midway points between the equator and the North and South Poles. The majority of the ocean is considered temperate ocean. It also offers many different types of marine life from the smallest plankton to the largest blue whale.

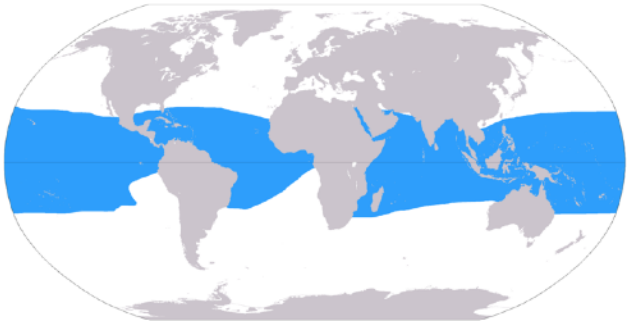


Plankton is the one of the smallest marine life forms found in the ocean and it is also the beginning of the food chain. Phytoplankton is a type of plant that are carried in the current and around the ocean. Phytoplankton lives in the top sunlit zone in the ocean. In this area the phytoplankton gets its energy from the sun. It takes the carbon dioxide in the water and uses sunlight to turn it into sugar which is used for energy. This is called photosynthesis. This is the same way a plant on earth works too . These phytoplankton are the producers in the ocean habitat that fish and other marine life can eat.

Green Sea turtles are one of the marine animals that you can find in temperate waters. They have flat and smooth shells and paddle shaped flippers that make them excellent swimmers. They are also cold blooded and in colder temperate waters they can hold their breath for 3-5 hours. However these turtles lay their eggs on sandy beaches and all of the adaptations that make them excellent in the water make them slow and at greater risk on land.

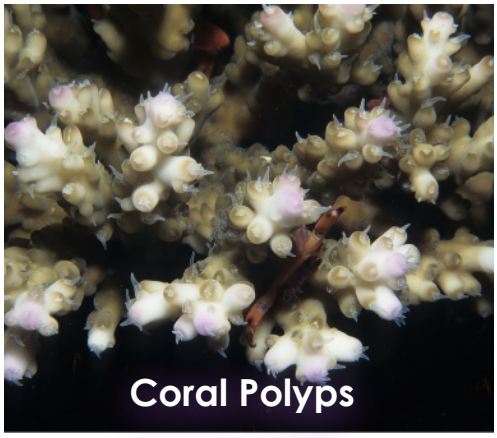
Life in the Ocean

Tropical Ocean Habitat



Location of Tropical Oceans

The third ocean habitat in the world is the tropical ocean habitat. This habitat is home to vibrant marine life and coral reefs. Coral reefs are beautiful and often colourful underwater structures that are home to a diverse group of marine life.

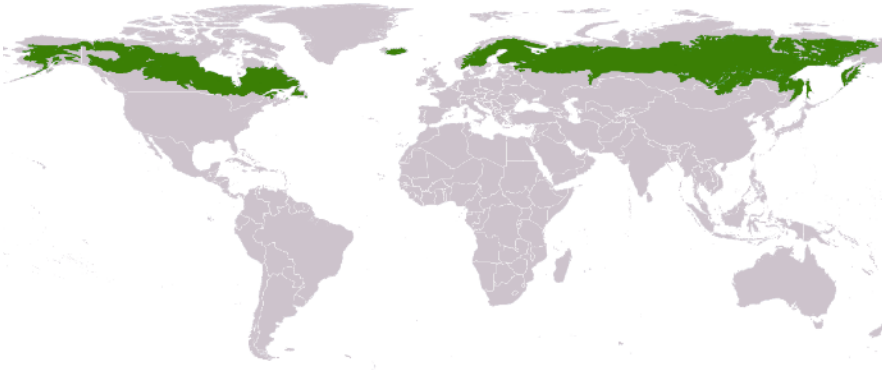


Coral Polyps

Coral reefs are formed by an organism called a coral polyp. These polyps have a soft body that creates a hard shell around itself for protection. The polyp combines some natural chemicals found in the ocean to create a hard shell that is actually limestone. When the polyp dies the limestone shell remains. Over decades colourful limestone structures are formed underwater. Coral reefs are in danger due to changes in the environment like climate change, pollution, and getting too much sunlight. Coral reefs around the world have experienced a bleaching over the last few decades. This means that they lost some of their colour. This happens when coral is stressed it loses its colour

There are also many different marine animals in tropical oceans. It is this region where you will find sharks, dolphins, seahorses, octopus, clownfish, and many more colourful types of fish. Sharks have **adapted** to this environment in many different ways. They are expert hunters and are able to sense the movement of prey around them through their inner ear detecting movement to their nose that senses electrical signals from their prey. Their body is perfectly coloured so that looking at them above you in the water they match the light grey/blue sky and looking at them below you in the water their darker colour blends in with the colour of the deeper darker ocean. Sharks also have sharp serrated teeth like a steak knife to eat their prey.

Coniferous Forest



The coniferous forest is located in temperate regions of North America, Asia and Europe. It is known for having short mild summers and long cold winters.
The coniferous forest is located south of the arctic tundra and north of the deciduous forest. It is also known as the boreal forest.

The coniferous forest is easily recognizable because it is full of conifer trees. These trees are shaped like cones. The trees are narrow at the top and wider at the bottom. These are the same trees that are used for traditional christmas trees. There is adequate rainfall in this habitat to support the growth of these trees despite the long cold winters that these trees must survive. The cone shape of the trees is great for winter time. The snow does not build up on the branches and falls off easily.

The trees are close together and block a lot of the sunlight that would get to the forest floor. The forest floor is covered in pine, and fungi. Pine needles are not easily decomposed in the soil. This makes the soil in the forest very acidic. The fungi works to break down the pine needles to feed nutrients back to the trees. Other plants like small shrubs, mosses, and lichen help to contribute to the life on the forest floor.

Coniferous Forest

Life in the coniferous forest is diverse. Animals in this habitat must be able to adapt to the weather in this region. Animals must be able to survive the harsh, cold winters. Animals such as moose, deer, caribou, mice, squirrels, wolves, foxes, and bears are just some of the animals that live in this habitat.

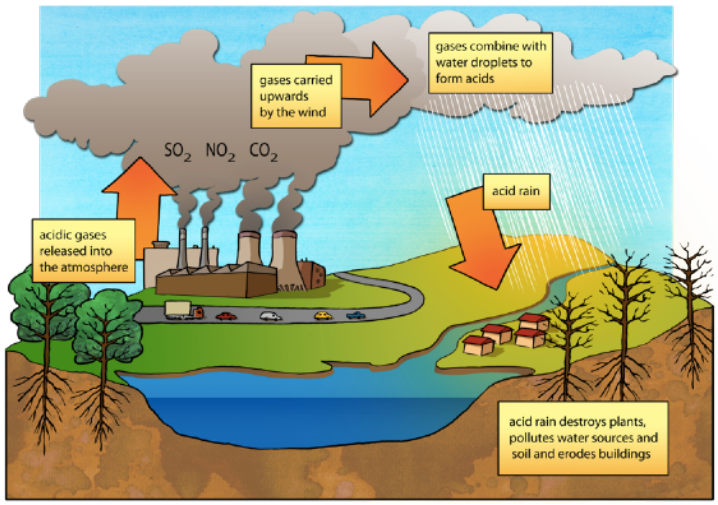
Bears adapt to this environment by hibernating. They will build up the fat in their body called fat stores, and sleep. Their bodies will survive the long cold winter months by living off these fat stores. Hares and foxes will grow thick winter coats, to stay warm, so they can survive the long winters.

Herbivores such as moose are perfectly adapted for living in coniferous forests. They have hoofed feet that help them walk on the snow without sinking in to it. Their fur also helps to keep them warm in the winter and cool in the summer. The hairs in their fur are hollow. This helps to trap air in their fur which keeps the cold air out in the winter. It also helps them to swim to keep cool in the summer. Their fur acts like water wings to keep them from sinking. Moose are also known for their large antlers (only males have antlers) these antlers fall off in the winter because they would require too many valuable nutrients from the moose. They also have a very strong sense of hearing and smell. This helps in dense forests to sense predators who may be a threat.

Other animals do not physically adapt to this environment so they have developed a pattern of migration. This is where they spend their summer months in this habitat attracted by the large amount of insects and the winter months they will leave this habitat for warmer areas only to return the following summer.

Coniferous Forest

There are many things that affect the coniferous forest and impact the balance of this habitat. The trees in these forests are a valuable resource for people. These trees are used for many things including wood products and paper. Logging is a major industry in this habitat. Logging if not done in a sustainable way can negatively impact this habitat. Sometimes the quickest and cheapest way to gather these necessary resources is to clear cut a forest. This is when all of the trees are cut down at once and a barren field is left. This practice has a significant negative impact on the life in this habitat. The animals in this habitat lose their homes when a forest is clear cut. Additionally, this practice exposes the soil to rain, water, and erosion.



Another impact on this habitat is acid rain. Acid rain is hurts the animals and plants in the forest. It happens when fossil fuels like coal and oil are burned by things like factories and cars. The smoke from these factories goes into the air. The smoke contains nitric and sulphuric acid. This acid becomes part of the rain which then falls on the trees and plants of the forest damaging them.

People are another problem impacting coniferous forests. These forests are located in areas with lots of people. People in these areas are expanding into these forests every year. Human expansion is called overpopulation. When people need space they take this from the forests little by little. As more and more people expand into the forest areas and cut down trees to build their homes the amount of space for the animals to live is reduced. With the population getting bigger there is also more demand for wood products as well. There are many things that we can do to help stop this including reducing our use of and dependency on wood products.

Grassland Habitat

Grasslands are found all around the world. Grasslands can be found in North America (called prairies), South America (pampas), Eurasia (Steppes), Australia (rangelands) and in Africa (Savannahs)

Grasslands are covered in, you guessed it, grass. This is because they get too much water to be a dessert by not enough water to be a forest. They are an in between habitat. Grasses are the most important plant of this habitat and grow easily in the rich soil and serve as a plentiful food resource for the many birds and herds of animals that wander the land.

This habitat is home to some of the most recognizable animals in the world. The weather in these areas differs greatly between seasons. They have cold winters and hot summers. The soil in these areas have a lot of nutrients. Fires is common in the grassland habitats. Sometimes it is started by lightning. Fire helps to replenish and renew this habitat. The grasses in this habitat are destroyed by the fire and will grow back thicker and stronger than before. Grasses in this habitat grow close to the ground and are not harmed when an animal snacks on them. Savannahs are found mostly in Africa. These types of grasslands have two very different seasons. They have a dry season and a wet season. The beginning of these seasons are often characterized

by violent thunder and lightning storms. Fire is also frequent during the dry season. Sometimes it is started by nature and thunderstorms in the middle of the dry season. Other times it is started by hunters trying to clear the land to help them hunt easily. Grasses in this habitat are replenished by the fire and when the wet season comes they grow quickly and will often become quite tall. The grasses in the Savannah habitat grow much quicker and taller than the grasses in a temperate grassland.

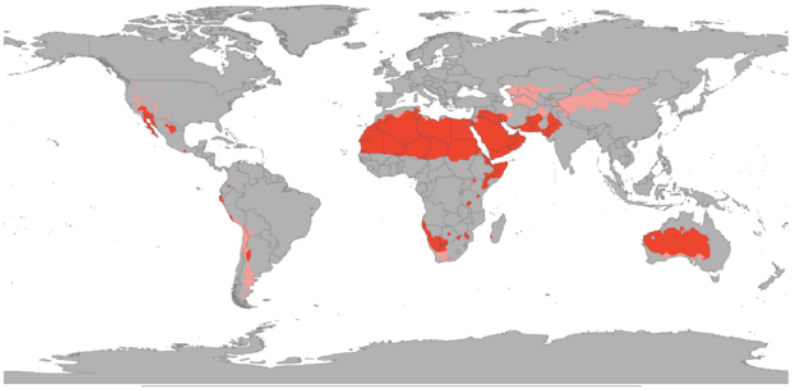
Grassland Habitat

Grasslands are home to many herd animals. The grassland habitat supports a large number of these herd animals. Bison, zebras, elk and antelopes are all examples of some common herd animals found in grassland habitats. These herd animals provide a great food source for some very recognizable predators such as lions, coyotes and jaguars.

Animals that live in grassland habitats have adapted well to their environment. Zebras are an example of a herd animal of the Savannah grassland. A zebra's well known black and white stripes help to make it hard for predators to target one of the heard because they all blend together. They also have adapted to run fast. Their single hoofed feet help them to run up to 80km/hr(50mph). That is faster than most people drive through a city. They also have adaptations that allow them to survive on the grasses in their environment. Zebras also have teeth that help to break and chew the tough grasses. They also have a special pouch after food leaves their stomach that helps them take extra nutrients out of the grasses. Zebras have adapted well to live successfully in the Savannah grassland habitat.

Another animal that thrives in the grassland habitat is a lion. Lions live in groups. They can live in groups from 5-20 lions. Males have large manes that circle their heads. These manes show strength and dominance to other lions. They make the male lion look bigger and scarier to other predators and prey. Lions are tan in colour and blend into their surroundings. Female lions are the hunters of the pride. Both male and female lions have sharp teeth and claws which helps them to grab their prey. Lions hunt mostly at night. Chasing their prey takes a lot of energy from their muscular body. Hunting at night helps them to save some energy. Lions can run 60km/hr (35 mph) but because of their smaller hearts cannot run at this speed for very long so they have to stalk and quickly catch their prey by surprise.

Desert Habitat



Deserts are dry. A desert is an area of the world where the land is barren (poor soil so most things won't grow) with very little rain or precipitation. The arctic and antarctic regions of the world can also be considered deserts.
Desert habitats make up a large part of the land on earth. They cover about 25% or one quarter of all of the land on earth.

Let's look closer at where these hot dry deserts are located. These hot dry deserts are located around of the middle of the earth, called the equator. Some famous deserts are the largest Sahara Desert in Northern Africa and the Mojave Desert in North America around Arizona.

These deserts are very dry. This happens because they do not get very much rain. In fact deserts get less than 10 inches (25cm) of rain each year. The sun also helps the water to evaporate faster than it can be replaced by rain. The soil in a desert is often barren and unlike other habitats the desert is not covered by plants. Deserts are hot during the day but many cool off a lot at night. Many deserts are covered by sand and sand dunes. This is caused by the weathering of the rocks in this habitat. When the temperature changes so quickly between day and night this puts a lot of stress on the rocks and they break apart. The sand on the ground picked up by the wind helps to weather and break down larger rocks in to smaller sand pieces. Although it may seem like not a lot of life would exist in this habitat. It actually supports a very well adapted habitat. The animals and plants who live in this habitat have special features about them that make them a perfect fit for this habitat.

Desert Habitat

The desert is not an easy place for most animals and plants to live. Since the desert is so hot and dry, many animals would have to figure out how to survive without water. These adaptations are important to survival in this habitat. Animals and plants in this habitat have adapted to this environment by learning how to find, convert, store and save water in their bodies to survive.

The cactus is a popular plant that is well known to live in the desert. A cactus has many adaptations that allow it to survive successfully in the desert. It is able to store water inside its plant body and save it for when it needs it. Many people know that it is not a good idea to hug a cactus. That is because a cactus is covered in spikes. These spikes help the cactus survive in two ways. First the cactus spikes help to protect the plant from animals that might eat it. It is hard to eat something that is covered in sharp spikes. Secondly a cactus spikes help protect it from the sun. Other plants have leaves but a cactus has spikes. Spikes are small and do not dry out like leaves in the hot rays of the sun.

If you had to travel through the desert, what animals might you take with you. Many people know that a camel is a great choice for travelling through the desert. Camels, unlike horses are better adapted to survive in the desert. Camels can go days without water. But this water is not stored in the camel humps like many people think. Camels are experts at conserving energy but limiting the amount of water that it gets rid of through sweat and urine. Camels also have to be able to walk through sand storms which are common in the desert. Their double set of eyelashes keep their eyes clean. Their nostrils are also narrow slits to prevent sand from getting in their nose.

The animals and plants of the desert have special skills that help them to survive in the desert. However this also means that they are at risk with slight changes to their habitat and suffer greatly if a new predator is introduced, often mistakenly by humans, into the ecosystem.

Desert Habitat

Deserts are specialized habitats that mean that the animals and plants that live there must have special skills and traits that allow them to survive in this habitat. This also means that small changes to the environment can also have a large effect on the life there. There are many different threats to desert habitats around the world.

The number of people that live around and near deserts is increasing. Sometimes this means that there are more people there than is easily supported by the environment. This is called over population. Unlike the animals and plants that live in desert habitats people have not adapted to this environment and we still require water to survive. Water is supplied to people in this area by digging down to the ground water supplies deep below the surface. With overpopulation there is not enough water to supply the number of people and it means taking more water before the water supplies can be replenished by the infrequent rains.

Drinking water is also affected by climate change. As deserts get hotter there is less and less rain in the deserts. This means that the ground water deep underground is unable to replenish as easily. Other things in the desert are affected by climate change too. Hotter temperatures also mean that any water or moisture from plants is evaporated by the sun. Although the desert does not get a lot of rain, it still requires the little that it does get to allow the habitat to survive.

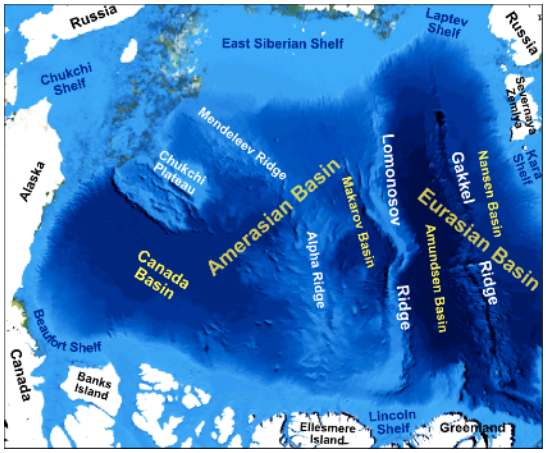
MODELLED RESEARCH

Life in the Ocean

Arctic Ocean Habitat

Polar habitats have icy cold water. The marine life that live there must adapt to living in colder climates.

The Arctic Ocean is almost permanently covered by ice. It is surrounded by land from Canada, Russia, and Greenland. The Arctic Ocean is made up of two main basins of water. A basin is like a very large bowl that holds ocean water. These basins sit between two underwater mountain ranges on the ocean floor. Inside these two large basins are also smaller basins.



Arctic Krill feeding on ice algae

Phytoplankton are a type of plant. They are the producers in this food chain. In the Arctic, phytoplankton are frozen inside the ice. In the early spring, it groups together to make ice algae. This ice algae phytoplankton turns carbon dioxide in the water into sugar. It uses photosynthesis with help from the summer sun to make the sugar for the other ocean animals. Ice algae only grows in the summer. Ice algae does not grow in the winter because there is not enough sunlight. When the summer temperatures warm up the ice, the ice algae falls off the ice and sinks to the ocean floor. There, it is eaten by marine animals, like crabs.

Beluga Whale

Beluga whales are a of species that live in polar waters. These whales have adapted well to life in the icy ocean. They do not need a dorsal fin because without a dorsal fin they can easily move around the ice-covered waters. Belugas also have a thick layer of blubber to help keep them warm in the cold water.

There is a lot that we still don't know about the Arctic Ocean habitat. Human activities, climate change, and melting ice will have huge impacts on ocean life within this fragile habitat.

Polar Region Habitat

http://goo.gl/5dd8gg

Use the QR code to link to student research materials.

Land and Weather

Human Impact

Animals and Adaptations

Animal Adaptations

Land and Weather

Human Impact

Animal Adaptations

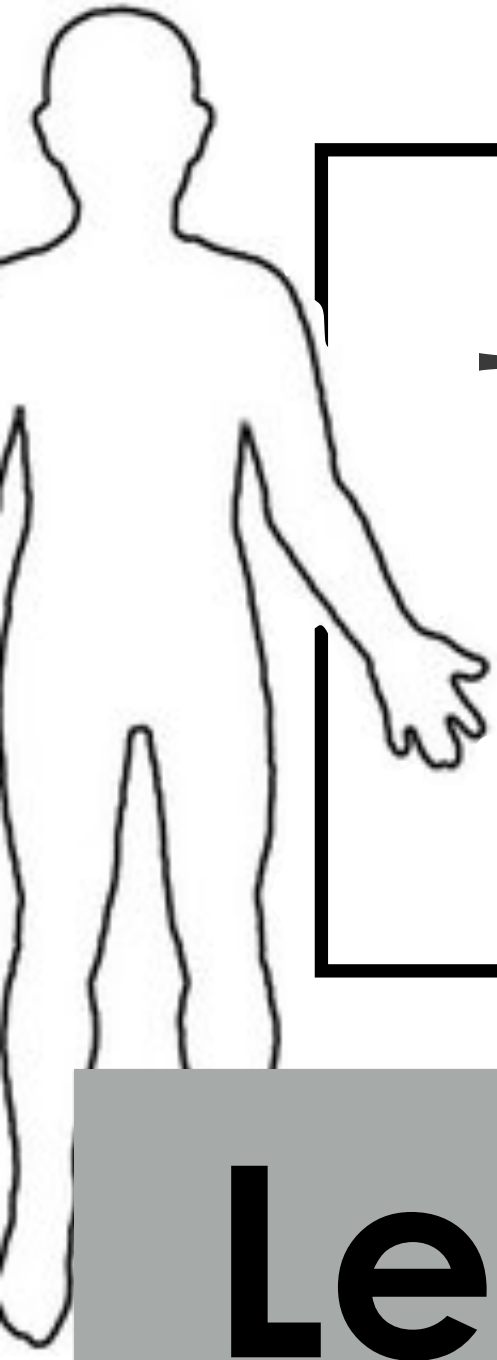
The Polar Region

Habitat

http://goo.gl/5dd8gg

Follow the QR code to link to the research materials for this topic. Fill out the foldable with your research. When done, cut out both shapes around the solid black line. Fold the flaps in on the dotted line. Glue the middle section into your notebook. Glue the title onto the front flaps.

SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #6

(4) L6

LESSON #6

Preparation:

Grade 4

- Students will need access to research for their habitats research centres: research baskets, digital access, or both.

Part A

Centre Day #2

Various Habitats - follow rotation schedule

Student Research Time

- Students will read and gather information about their habitat for this cycle of research.
- Students will work together to share information as they complete their research from the research baskets.
- Students will record their information on their chosen Research Organizers.

Have your students choose a research organizer for their preferred region. These are located in lessons 5, 6, 7, 8, 9, and 10.

Part B

Centre Day #2

Meet with Teacher

- Conference with1-2 groups of students about their research. They will share what they have learned and check in on research skills. You should make notes of any students who may need additional support on researching skills or catch-up time.

Student Collaboration:

- Students not meeting with the teacher will either continue researching or collaborate with other students about what they have learned and share the information they have gathered with peers.
- Students will put their research organizers into their notebooks.

Assessment:

Students will conduct their own research notes and extract important information.

- Is the research that the student collected relevant and thorough for student research?

Accommodations:

- Print resources for student research.
- Students can rely on the facts from the additional research package.

Notes:

Tropical Rainforest Habitat

Use the QR code to link to student research materials.

http://goo.gl/jJ2uyh

Land and Weather

Human Impact

Animals and Adaptations

Animal Adaptations

Land and Weather

Human Impact

Animal Adaptations

Tropical Rainforest Habitat

http://goo.gl/jJ2uyh

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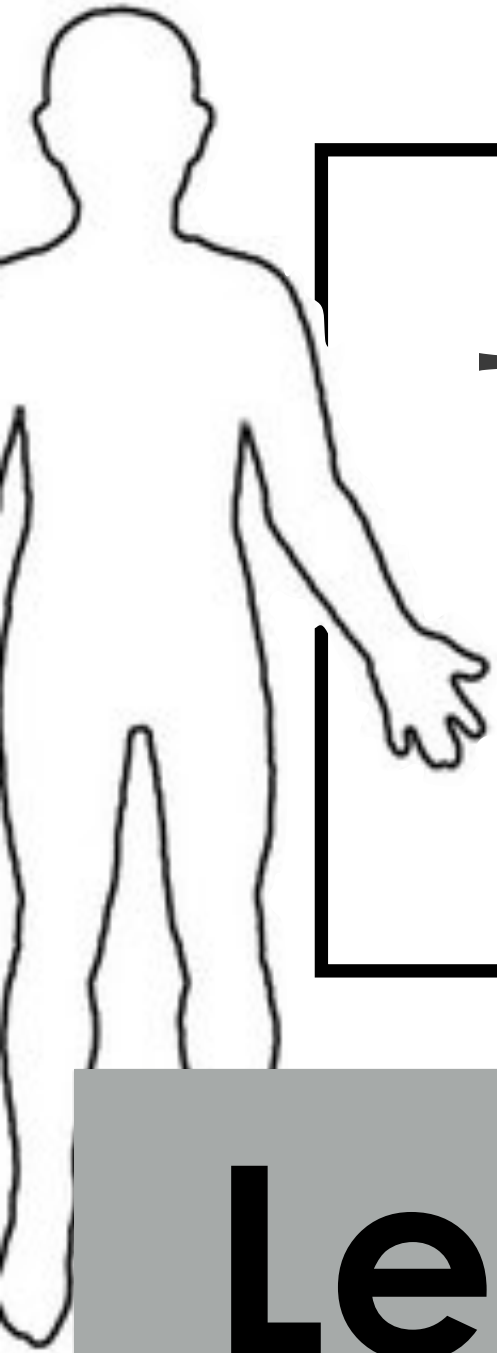
SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #7

(4) L7

LESSON #7

Preparation:

Grade 4

- Students will need access to research for their habitats research centres: research baskets, digital access, or both.

Part A

Centre Day #3

Meet with Teacher

- Conference with1-2 groups of students about their research. They will share what they have learned and check in on research skills. You should make notes of any students who may need additional support on researching skills or catch-up time.

Student Collaboration:

- Students not meeting with the teacher will either continue researching or collaborate with other students about what they have learned and share the information they have gathered with peers.
- Students will put their research organizers into their notebooks.

Part B

Centre Day #3

Various Habitats - follow rotation schedule

Student Research Time

- Students will read and gather information about their habitat for this cycle of research.
- Students will work together to share information as they complete their research from the research baskets.
- Students will record their information on their chosen Research Organizers.

Assessment:

Students will conduct their own research notes and extract important information.

- Is the research that the student collected relevant and thorough for student research?

Accomodations:

Students will conduct their own research notes and extract important information.

- Is the research that the student collected relevant and thorough for student research?

Notes

Ocean Habitat

Use the QR code to link to student research materials.

http://goo.gl/igVXqa

Land and Weather

Human Impact

Animals and Adaptations

Animal Adaptations

Land and Weather

Human Impact

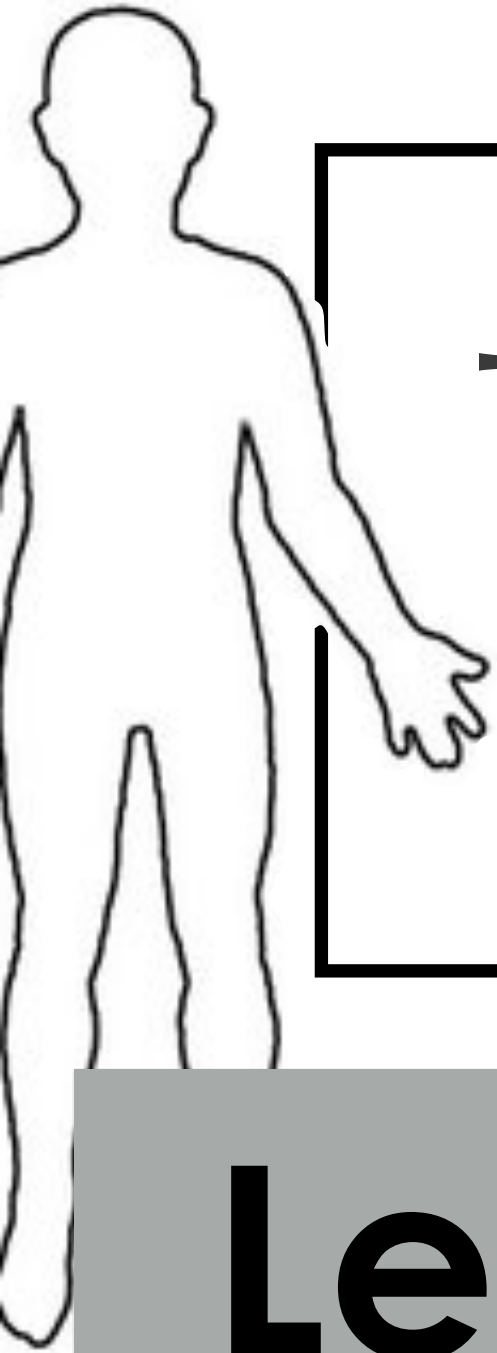
Animal Adaptations

Ocean Habitat

http://goo.gl/

Follow the QR code to link to the research materials for this topic. Fill out the foldable with your research. When done, cut out both shapes around the solid black line. Fold the flaps in on the dotted line. Glue the middle section into your notebook. Glue the title onto the front flaps.

SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #8

(4) L8

LESSON #8

Preparation:
Grade 4
- Students will need access to research for their habitats research centres: research baskets, digital access, or both.

Part A

Centre Day #4
Meet with Teacher
- Conference with1-2 groups of students about their research. They will share what they have learned and check in on research skills. You should make notes of any students who may need additional support on researching skills or catch-up time.

Student Collaboration:
- Students not meeting with the teacher will either continue researching or collaborate with other students about what they have learned and share the information they have gathered with peers.
- Students will put their research organizers into their notebooks.

Part B

Centre Day #4
Various Habitats - follow rotation schedule

Student Research Time
- Students will read and gather information about their habitat for this cycle of research.
- Students will work together to share information as they complete their research from the research baskets.
- Students will record their information on their chosen Research Organizers.

Assessment:

Students will conduct their own research notes and extract important information.

- Is the research that the student collected relevant and thorough for student research?

Accomodations:

Students will conduct their own research notes and extract important information.

- Is the research that the student collected relevant and thorough for student research?

Notes

Coniferous Forest Habitat

Use the QR code to link to student research materials.

http://goo.gl/tx1Dai

Land and Weather

Human Impact

Animals and Adaptations

Animal Adaptations

Land and Weather

Human Impact

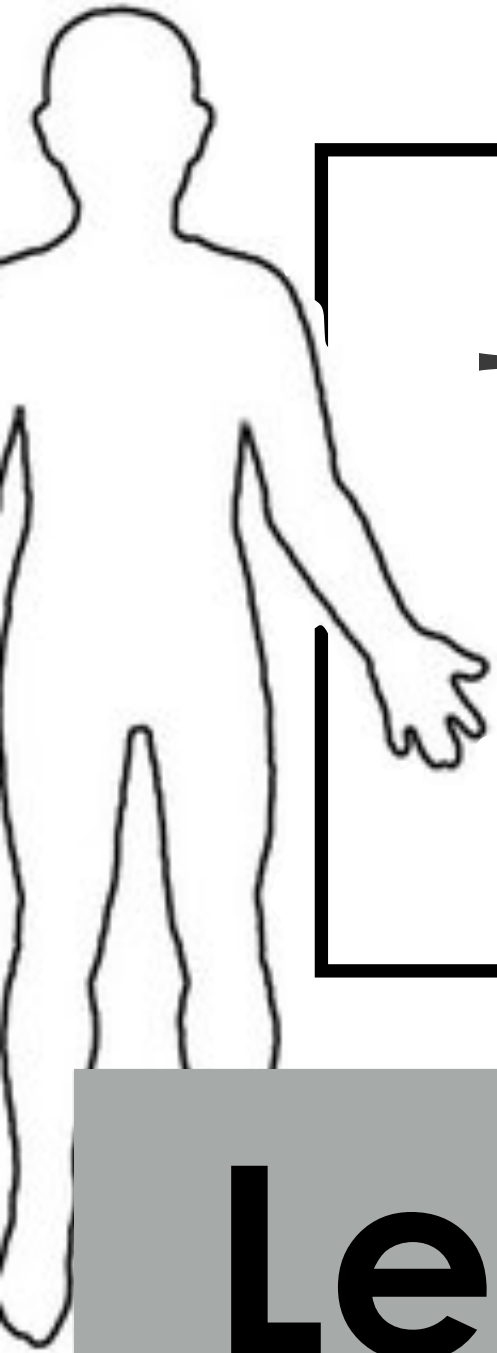
Animal Adaptations

Coniferous Forest Habitat

http://goo.gl/tx1Dai

Follow the QR code to link to the research materials for this topic. Fill out the foldable with your research. When done, cut out both shapes around the solid black line. Fold the flaps in on the dotted line. Glue the middle section into your notebook. Glue the title onto the front flaps.

SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #9

(4) L9

LESSON #9

Preparation:
Grade 4
- Students will need access to research for their habitats research centres: research baskets, digital access, or both.

Part A

Centre Day #5
Meet with Teacher
- Conference with1-2 groups of students about their research. They will share what they have learned and check in on research skills. You should make notes of any students who may need additional support on researching skills or catch-up time.

Student Collaboration:
- Students not meeting with the teacher will either continue researching or collaborate with other students about what they have learned and share the information they have gathered with peers.
- Students will put their research organizers into their notebooks.

Part B

Centre Day #5
Various Habitats - follow rotation schedule

Student Research Time
- Students will read and gather information about their habitat for this cycle of research.
- Students will work together to share information as they complete their research from the research baskets.
- Students will record their information on their chosen Research Organizers.

Assessment:

Students will conduct their own research notes and extract important information.

- Is the research that the student collected relevant and thorough for student research?

Accomodations:

Students will conduct their own research notes and extract important information.

- Is the research that the student collected relevant and thorough for student research?

Notes

Grassland Habitat

Use the QR code to link to student research materials.

http://goo.gl/NBBRzo

Land and Weather

Human Impact

Animals and Adaptations

Animal Adaptations

Land and Weather

Human Impact

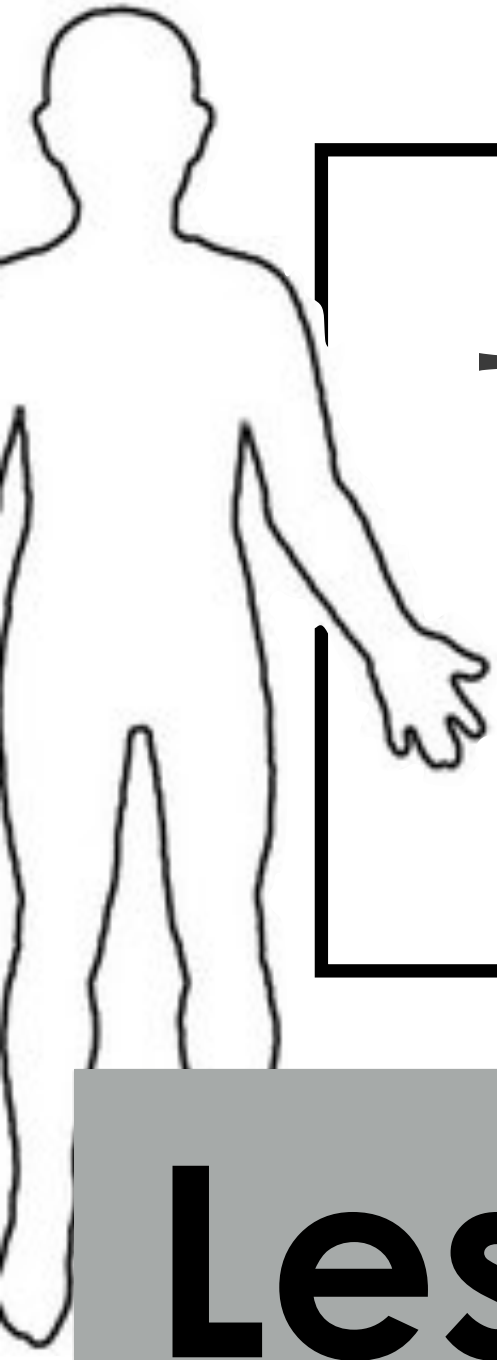
Animal Adaptations

Grassland Habitat

http://goo.gl/NBBRzo

Follow the QR code to link to the research materials for this topic. Fill out the foldable with your research. When done, cut out both shapes around the solid black line. Fold the flaps in on the dotted line. Glue the middle section into your notebook. Glue the title onto the front flaps.

SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #10

(4) L10

LESSON #10

Preparation:

Grade 4

- Students will need access to research for their habitats research centres: research baskets, digital access, or both.

Part A

Centre Day #6

Meet with Teacher

- Conference with1-2 groups of students about their research. They will share what they have learned and check in on research skills. You should make notes of any students who may need additional support on researching skills or catch-up time.

Student Collaboration:

- Students not meeting with the teacher will either continue researching or collaborate with other students about what they have learned and share the information they have gathered with peers.
- Students will put their research organizers into their notebooks.

Part B

Centre Day #6

Various Habitats - follow rotation schedule

Student Research Time

- Students will read and gather information about their habitat for this cycle of research.
- Students will work together to share information as they complete their research from the research baskets.
- Students will record their information on their chosen Research Organizers.

Assessment:

Students will conduct their own research notes and extract important information.

- Is the research that the student collected relevant and thorough for student research?

Accomodations:

Print resources for student research.
Students can rely on the facts from the additional research package.

Notes

Desert Habitat

Use the QR code to link to student research materials.

http://goo.gl/yS5Lu6

Land and Weather

Human Impact

Animals and Adaptations

Animal Adaptations

Land and Weather

Human Impact

Animal Adaptations

Desert Habitat

http://goo.gl/yS5lu6

Follow the QR code to link to the research materials for this topic. Fill out the foldable with your research. When done, cut out both shapes around the solid black line. Fold the flaps in on the dotted line. Glue the middle section into your notebook. Glue the title onto the front flaps.

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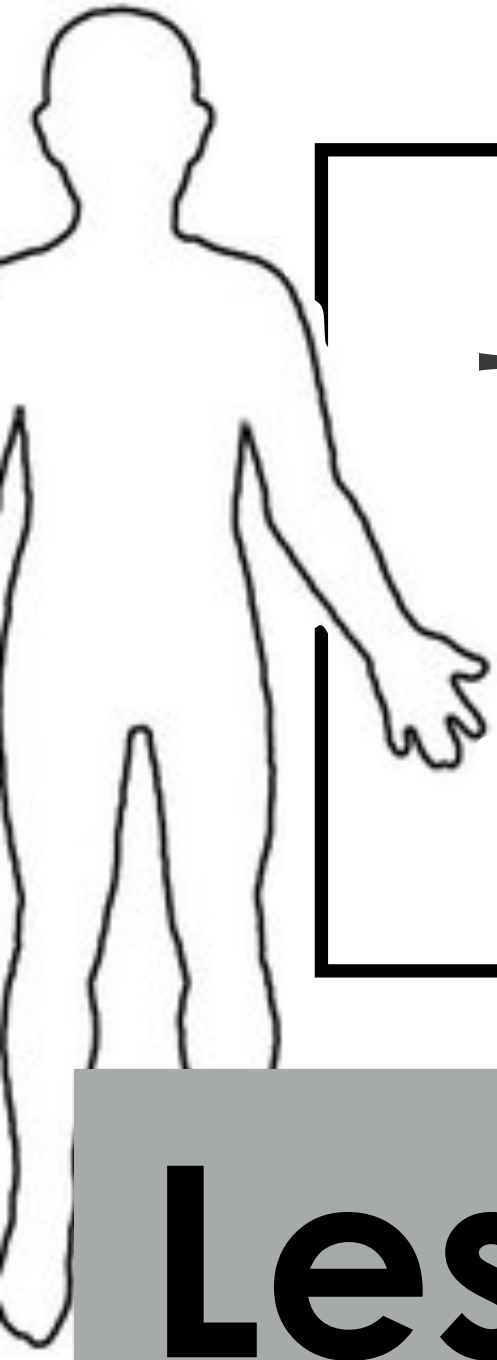


Grade 4

Teaching Plan

Habitats

Lesson #11

(4) L11

LESSON #11

Preparation:

Grade 4

- Prep the Task Cards for students. These may be important to print in colour if possible.

Part A

- What is an endangered animal?

Hand out the article **Endangered Animals - Keeping them Here**. Read together with students.

Students discuss the following questions with the teacher:

- What is an endangered species?
- What makes an animal endangered?
- What types of animals are endangered?
- What can we do to make a difference?

Show students the **Endangered Species Task Cards**. Talk about some of the different animals that are endangered.

Part B

Students will use the task cards to choose an animal that they are interested in learning more about.

Have students research more information about their animal. **bit.ly/ML-endangeredanimals**

Students will use the endangered species task cards and brainstorm things that can be done to help increase the animal population.

Students will create a PSA that will help to inform others of about their endangered animals and what can be done to help protect them. This information will be presented as a **PSA** in an oral presentation.

Assessment:

Accommodations:

- If time allows, grade 4 students can complete the following extension activities:

http://www.ecokids.ca/pub/eco_info/topics/climate/adaptations/

http://www.bbc.co.uk/nature/adaptations/Detritivore#p0082js2

http://sciencelearn.org.nz/Science-Stories/Earthworms/Earthworm-adaptations

(If you do not have access to technology in the classroom, it would be a good idea to print the articles from the research package and reduce the choices in which students can research.)

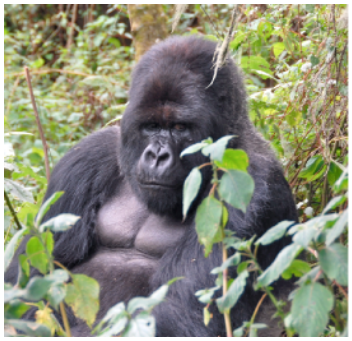
Notes:

This lesson is an important lesson and transitions from simple fact-finding, gaining knowledge, and understanding to being about to apply some of what they have learned to make changes.The key ideas here are to focus on actions that need to be taken to prevent the loss of habitat and animals. This will be the integral step between learning and application necessary for the final inquiry project.

Endangered Animals

Keeping Them Here

Endangered animals are animals that are at risk of disappearing from Earth. Sometimes, there are very few animals left of a species. These animals are said to be endangered. There are many animals that have already become extinct, like the dodo bird and one type of black rhino from west Africa.



Many other animals are endangered too. The Amur leopard, the mountain gorilla, and the northern white rhino are all very close to becoming extinct. As of the writing of this article, there are only two northern white rhinos left in captivity in the world. Scientists are working very hard to increase the number of rhinos and other endangered animals.

There are many different reasons why animals become endangered. Sometimes, the habitat for the animal changes and the animal is slow to adapt to these changes. Habitats are changed by humans and the environment. Other times, animals are hunted too much and the animals are not able to keep their population strong.

Humans depend on wood. We need it to build our homes and make paper. Our need for wood is very high and it needs to come from somewhere. Animals also depend on trees for their homes and look for different places to find their food.

We need to think about how cutting down the trees we need affects the animals that also depend on these trees. Clear-cutting is a practice that some logging companies use. They clear the land by cutting down trees. To prevent this, logging companies can agree to sustainable logging, making sure that they are responsible and keep the habitats in good health while still getting the wood they need. In Algonquin Park, Ontario, Canada, trees are removed one at a time in many different areas of the park to help sustain the natural forests.

Endangered Animals

Keeping Them Here

Humans also have things they like to do for fun. Humans like to hunt and fish for animals. In North America, most people don't need to hunt to eat, because now we have grocery stores. When someone hunts, they take an animal out of the food chain. If too many of the same animal are taken out, it can have a bad impact on the animal species. Some animals are hunted so that hunters can hang them on the wall as trophies. Many endangered animals are hunted because their fur or horns are valuable to sell. Illegal hunting is called *poaching*. Poaching is a serious concern around the world and hurts many endangered animals. Hunters have rules to follow about hunting, like how many can be hunted. Poachers ignore the rules and hunt what ever they want.

This form of irresponsible hunting is a big danger to all animals and habitats. It can hurt the overall health of the habitat. Many animals, like the northern white rhino, are extremely endangered due to poaching. However, not all hunting is bad. Hunting can also help keep the food chain balanced. Sometimes, animals become overpopulated which is also bad for the habitat and the food chain. Hunting is encouraged and allowed in order to help maintain a balanced habitat. Many governments help to control hunting. First, they find the current population of the animal. They learn how many of that animal is needed within the habitat. They only allow hunting at certain times and place many other rules on hunters to be responsible when hunting. This is called sustainable hunting. Most hunters are very responsible and follow the rules to hunt sustainably and legally.

Endangered Animals

Keeping Them Here

There are some things that we can do to help protect different animals from becoming extinct. One way is to work with environmental groups such as the World Wildlife Federation to help protect the habitats for these different animals. You can donate to this group to support their efforts to protect endangered animals through their actions and their research.

Many zoos provide safe areas for some endangered animals to live in protected environments. They also help to increase the population of endangered animals by using science and medicine. However, not all places that call themselves zoos are great to animals. Before you visit a zoo, make sure that they are well-respected and committed to animal protection and conservation.

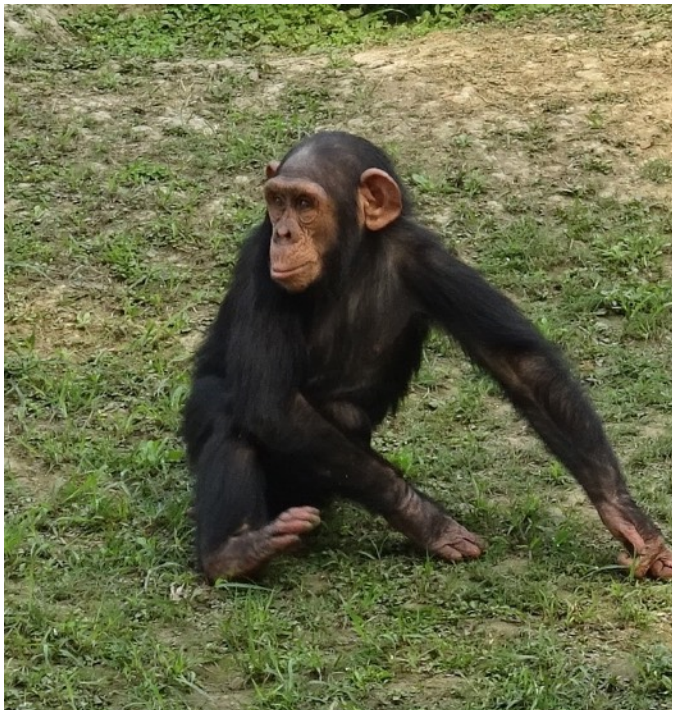
Another thing that we can do is to decrease our use of natural resources, like trees, animals, and minerals. When we overuse these resources, we are taking too much away from Earth's habitats. When this happens, habitats are demolished for more farmland, housing for people, land for factories, and animals are over-hunted for food or profit. If we reduce what we need, reuse what we can, and recycle old things into new products, we can help to decrease the amount that we take, therefore preserving the Earth's natural habitat. Remember, a lot of the things we use and waste in North America are rooted in the environment, so reducing what we use is important.

Want to learn about more endangered animals and what can be done to help to protect them? Follow the link or QR code.

bit.ly/ML-endangeredanimals

Chimpanzee

Status: Endangered
Habitat: Forests
Where: Congo, Africa

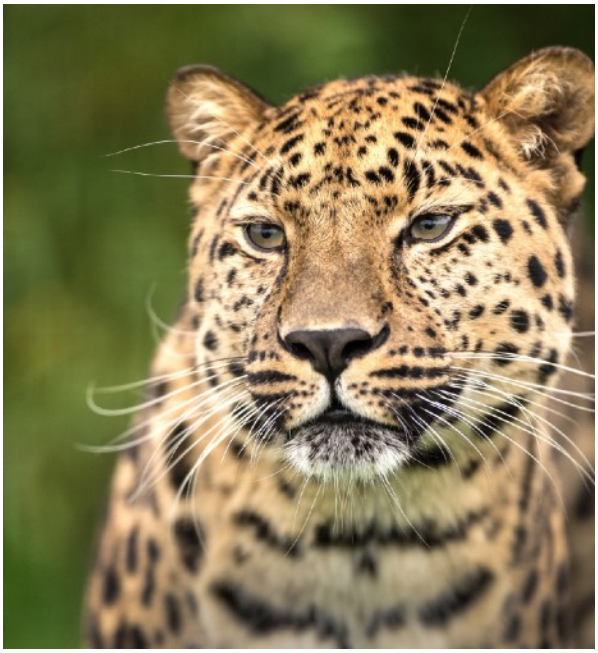


Blue Fin Tuna

Status: Endangered
Habitat: Oceans
Where: Coral Triangle in the Pacific Ocean

Amur Leopard

Status: Critically Endangered
Habitat: Temperate Forests/ Mountains
Where: Amur-Heilong, Asia



Black Rhino

Status: Critically Endangered
Habitat: Deserts and Grasslands
Where: Namibia, East Africa

African Wild Dog

Status: Endangered
Habitat: Forests, Grasslands, Deserts
Where: Coastal East Africa

Hawksbill Turtle

Status: Critically Endangered
Habitat: Oceans
Where: Coastal East Africa and Coral Triangle in the Pacific Ocean

Black Spider Monkey

Status: Endangered
Habitat: Tropical Forests
Where: Amazon, South America

Mountain Gorilla

Status: Critically Endangered
Habitat: Forests and Mountains
Where: Congo Basin, Africa

Bengal Tiger

Status: Endangered
Habitat: Forests, Grasslands
Where: India

Sumatran Elephant

Status: Critically Endangered
Habitat: Tropical Forests
Where: Borneo and Sumatra

Blue Whale

Status: Endangered
Habitat: Ocean
Where: Southern Chile, Gulf of California, Coral Triangle in the Pacific Ocean

Giant Panda

Status: Endangered
Habitat: Mountains and Forests
Where: Yangtze, China

PSA Guide

Habitats

Think about how you could inform someone about the risk of your animal becoming endangered and what they can do to help.

What I know about this animal.	Animal's habitat facts.

My Research

Facts about the **STATUS** of my animal.

Why is my animal at risk of becoming endangered?

PSA Guide

Habitats

Think about how you could inform someone about the risk of your animal becoming endangered and what they can do to help.

What things can be done to help my animal?

Focus on your PSA

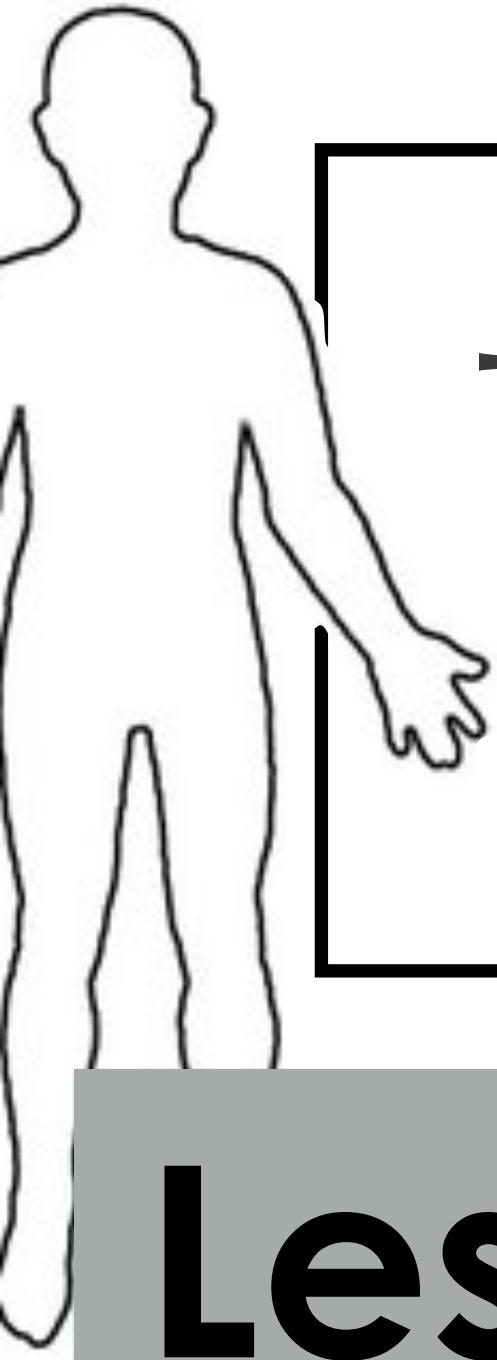
Who is your audience?

What behaviour do you want people to change?

What is the goal of your PSA?

What will happen in your PSA? How will it be organized?

SCIENCE



Grade 4

Teaching Plan

Habitats

Lesson #12

(4) L12

LESSON #12A

Preparation:

Part A

Students will continue to research their endangered animal and what can be done to help to save it.

They will use the PSA organizer to help them organize for their presentation to the class and use this time to prepare.

Part B

Students will present to the group all about their animal and what can be done to help to save it from extinction.

Assessment:

Accommodations:

If time allows, grade 4 students can complete the following extension activities:

http://www.ecokids.ca/pub/eco_info/topics/climate/adaptations/

http://www.bbc.co.uk/nature/adaptations/Detritivore#p0082js2

http://sciencelearn.org.nz/Science-Stories/Earthworms/Earthworm-adaptations

Notes:
Additional games such as SCOOT can be used by using the cards from the previous lesson.

LESSON #12B

Preparation:

Part A

Use this time for students to catch up on any material they have not completed from the research on each different type of habitat in lessons 5 through 10.

Part B

If students have no unfinished work, have them create a review game by following the Habitats in Review - Create a Game instructions. Students will create four Review Question Cards (one page) for each habitat. They will record their answers on the SCOOT Answers page.

Use the Game Boards or other activities following this lesson to use the task cards that students create.

Assessment:

- Can students apply what they have learned to create a review game?

Accommodations:

- Ask students to contribute questions to a whole group game board that is created collaboratively.

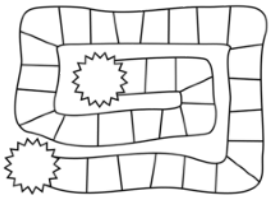
Notes:

This lesson is an important lesson and transitions from simple fact-finding, gaining knowledge, and understanding to being about to apply some of what they have learned to make changes.The key ideas here are to focus on actions that need to be taken to prevent the loss of habitat and animals. This will be the integral step between learning and application necessary for the final inquiry project.

Additional games such as SCOOT can be used by using the cards from the previous Grade 4 lesson.

Habitats in Review

Create a Game



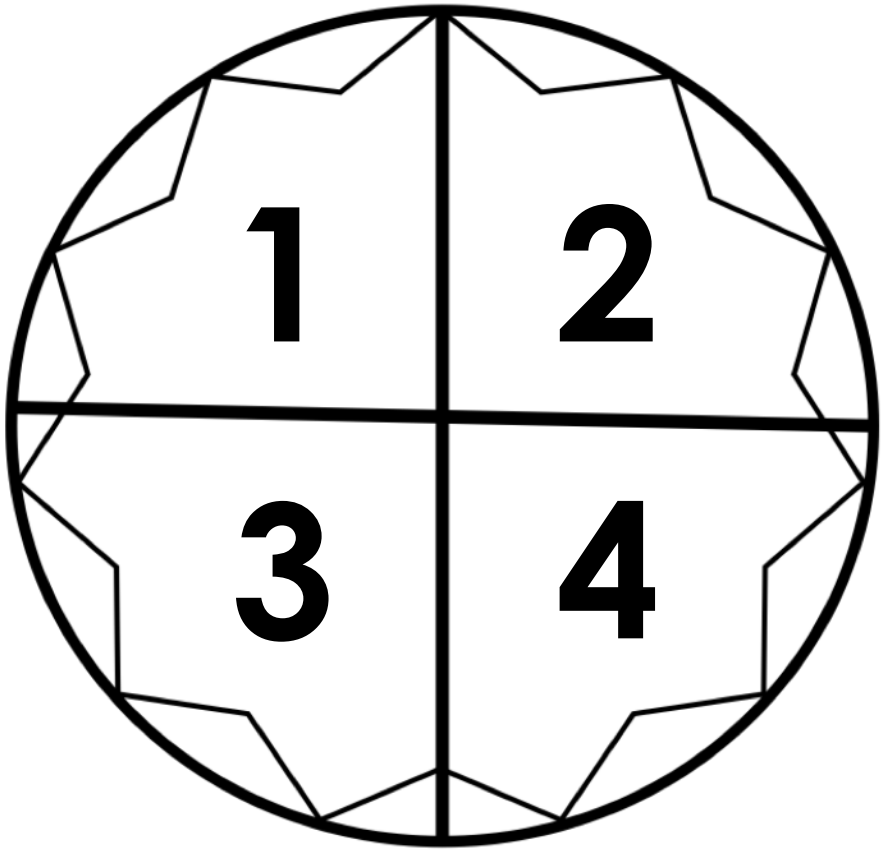
Using your notes and the articles that you read to complete your research, create four questions for each habitat. Questions should include information about:

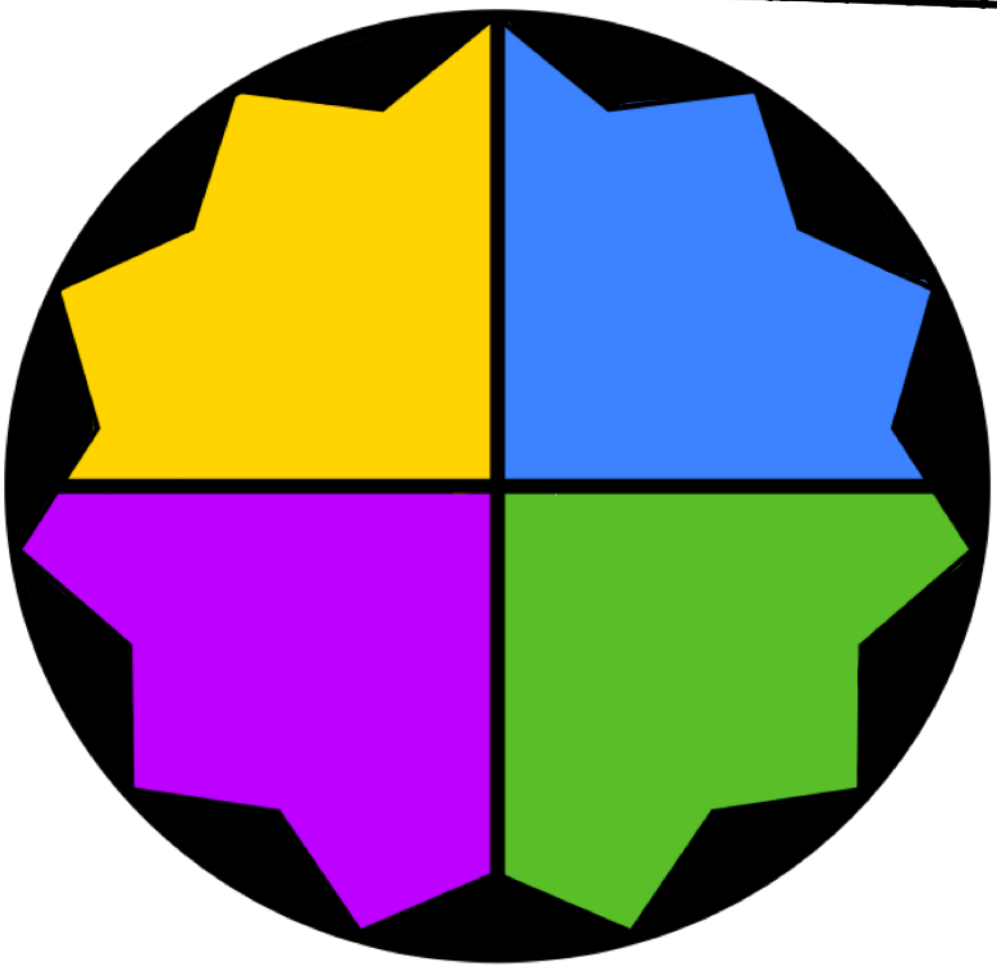
- food chains and food webs within the habitat
- animal adaptations
- human impacts
- location or physical features

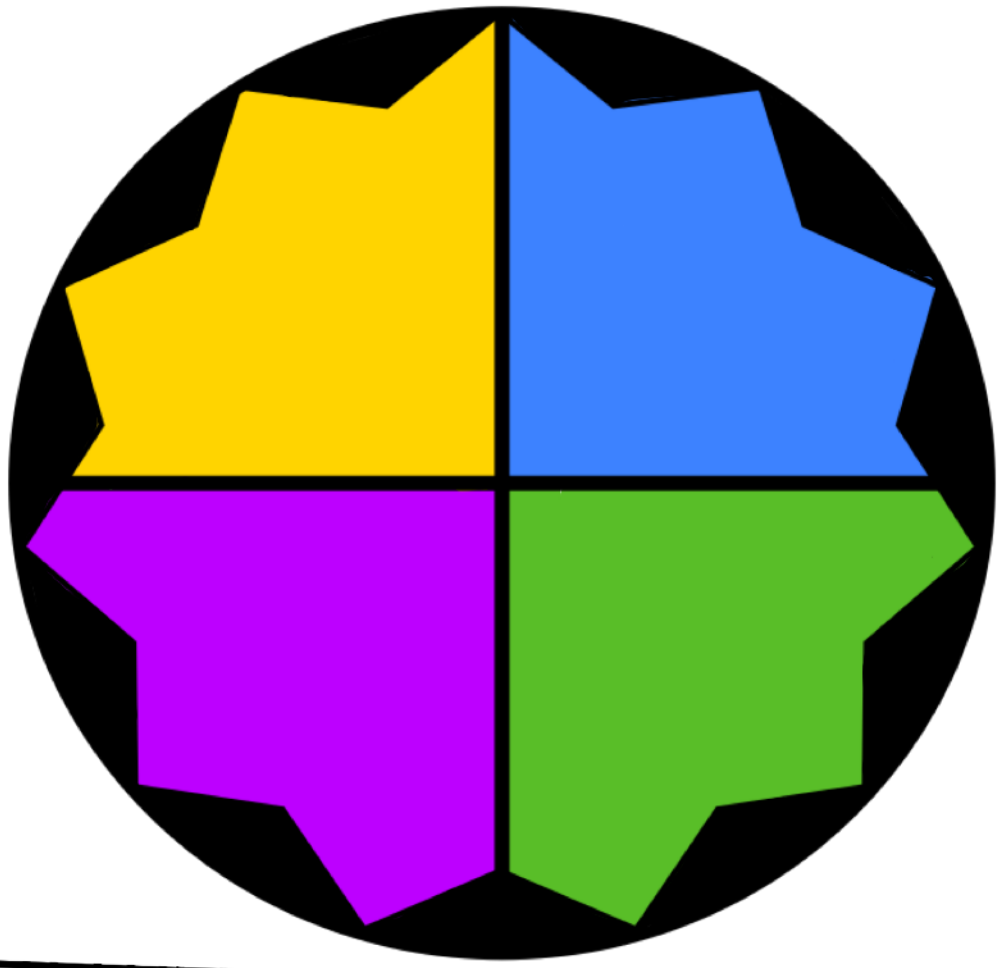
Include the answers on each card provided or on the answers page given. Code each card with your initials and the number of the card (e.g., ML-2). Use the cards, the spinner below, and the game board to review the information you have learned about the different habitats.

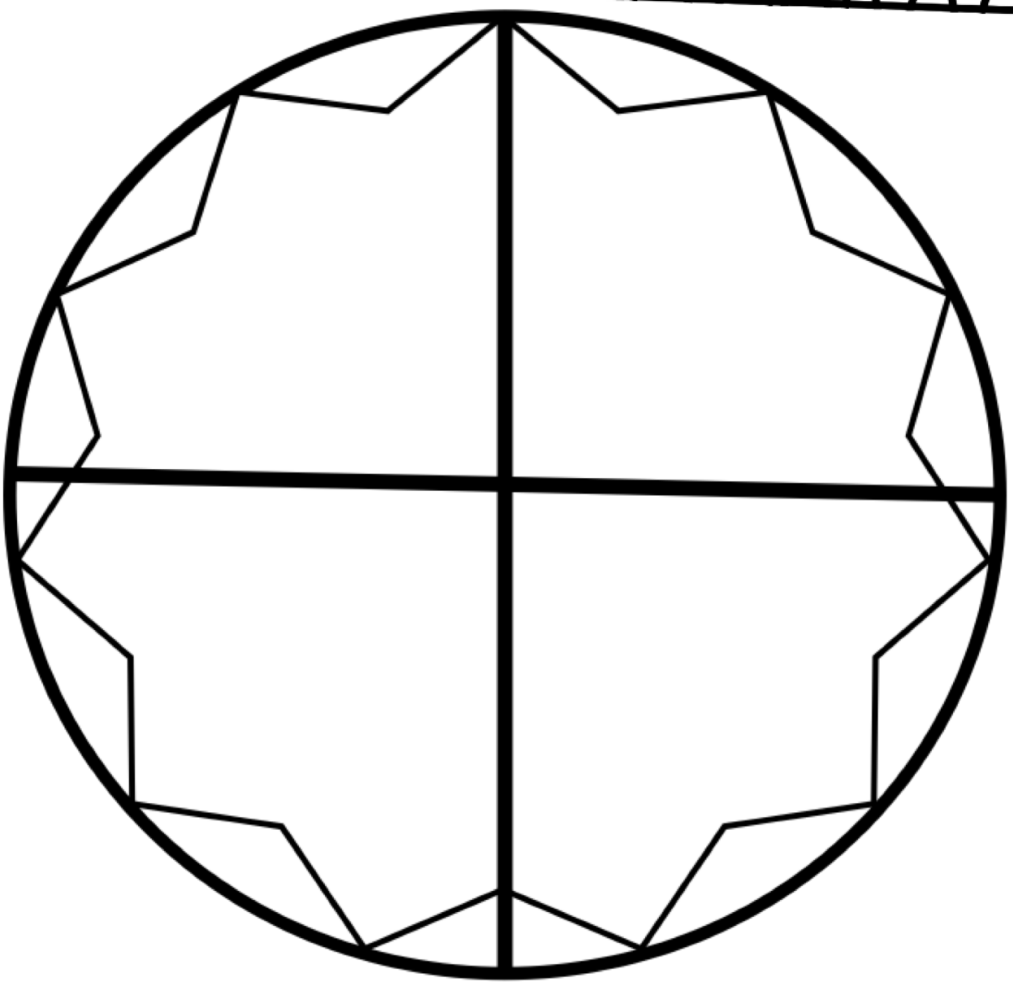
Game Instructions

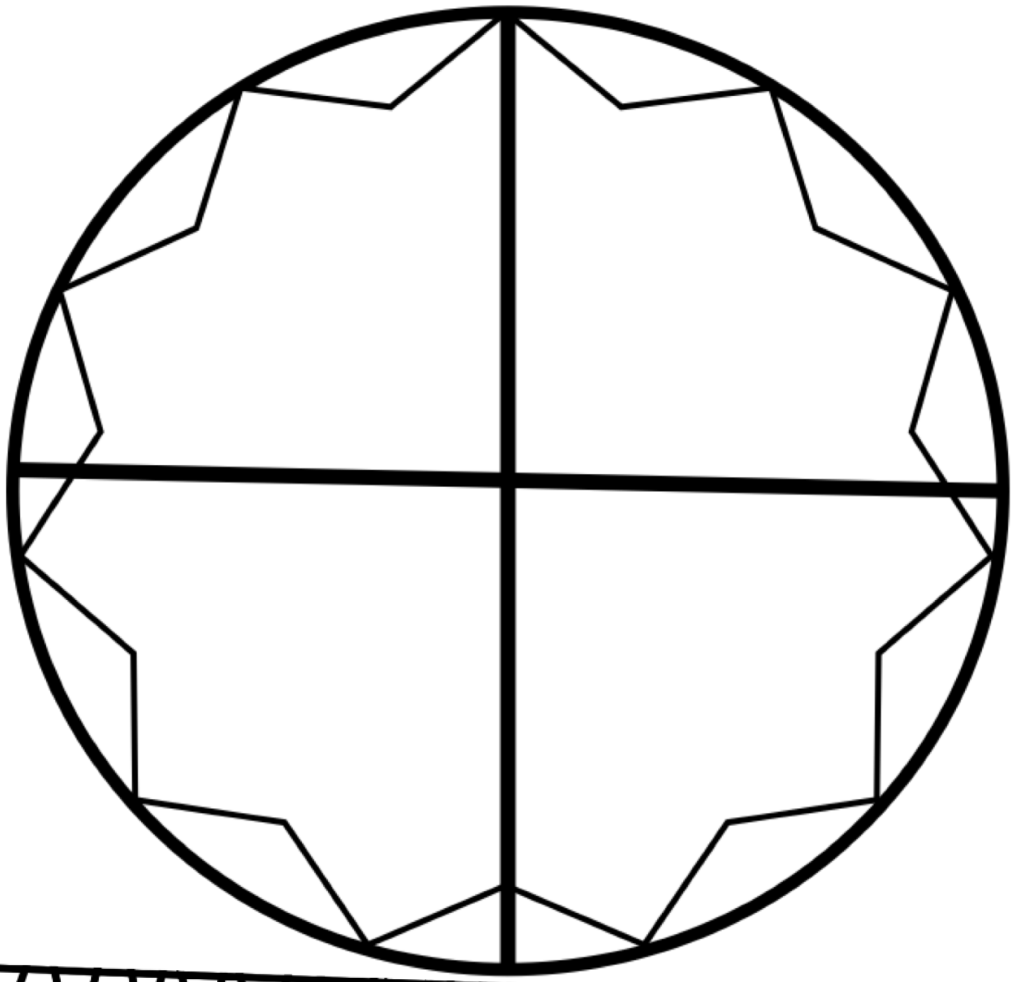
- youngest person goes first
- first person spins the spinner
- another player will read the card to the first player and if the first player answers correctly, they move forward the number of spaces spun
- if the first player does not answer the question correctly, they move back the number of spaces spun

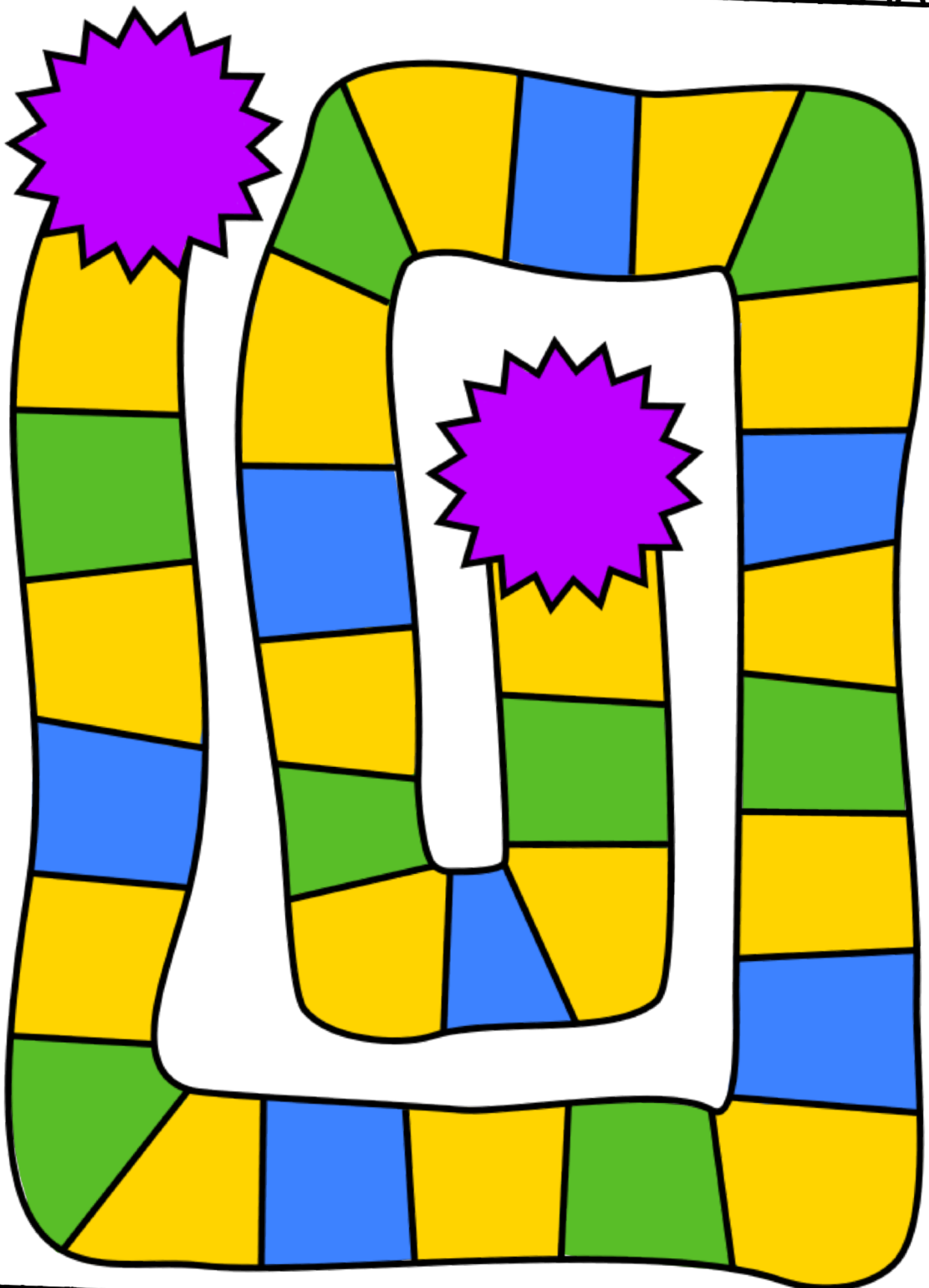


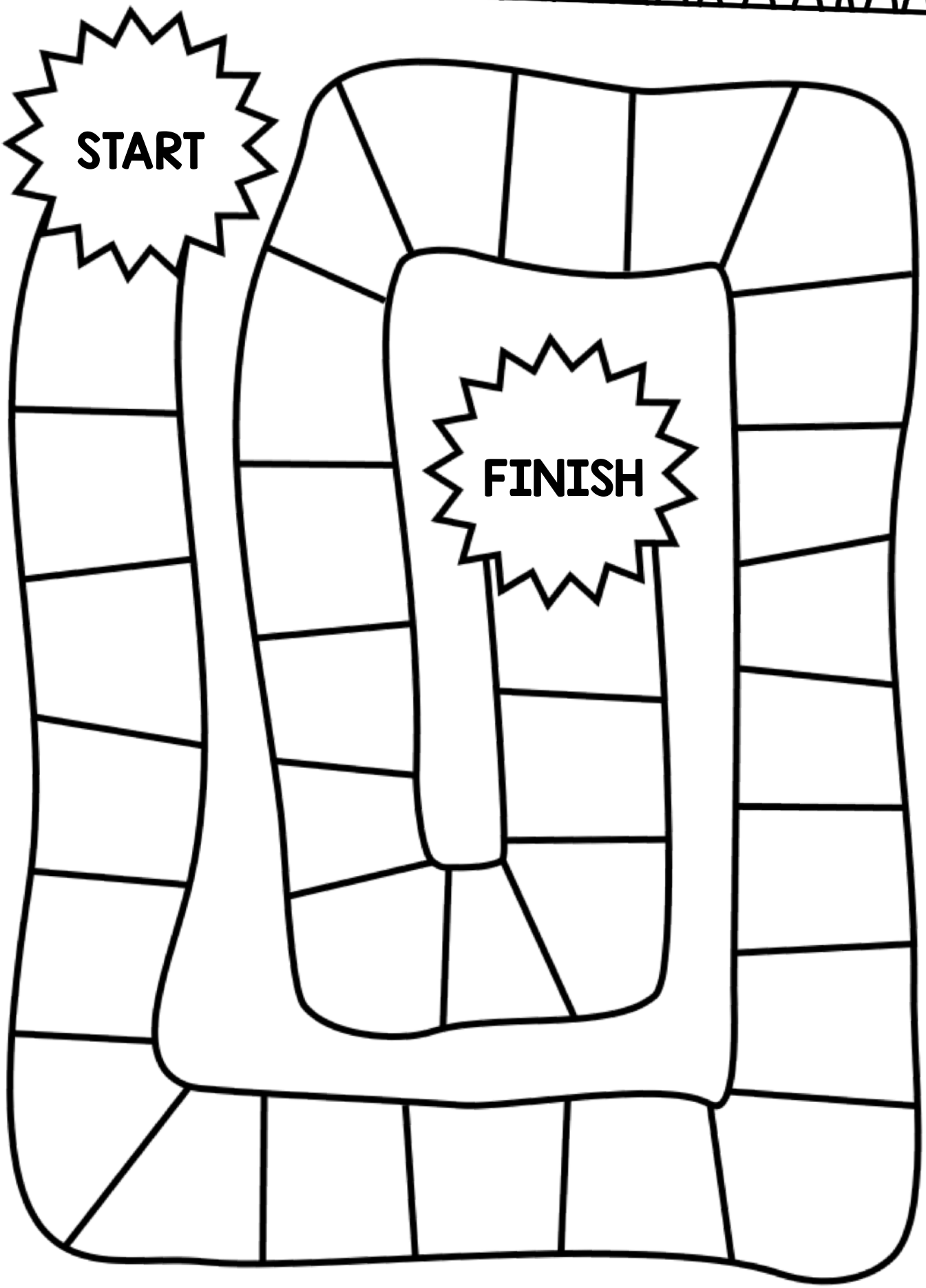












If you answer a question correctly, move forward the number you spun. If you answer your question incorrectly, move back the number of spaces that you have spun.

Habitat: ____________________

Question

Answer:

Habitat: ____________________

Question

Answer:

Habitat: ____________________

Question

Answer:

Habitat: ____________________

Question

Answer:

SCOOT Card # ________

Habitat: ________________

Question

____
____
____
____
____

A) ________________

B) ________________

C) ________________

SCOOT Card # ________

Habitat: ________________

Question

____
____
____
____
____

A) ________________

B) ________________

C) ________________

SCOOT Card # ________

Habitat: ________________

Question

____
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____
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A) ________________

B) ________________

C) ________________

SCOOT Card # ________

Habitat: ________________

Question

____
____
____
____
____

A) ________________

B) ________________

C) ________________

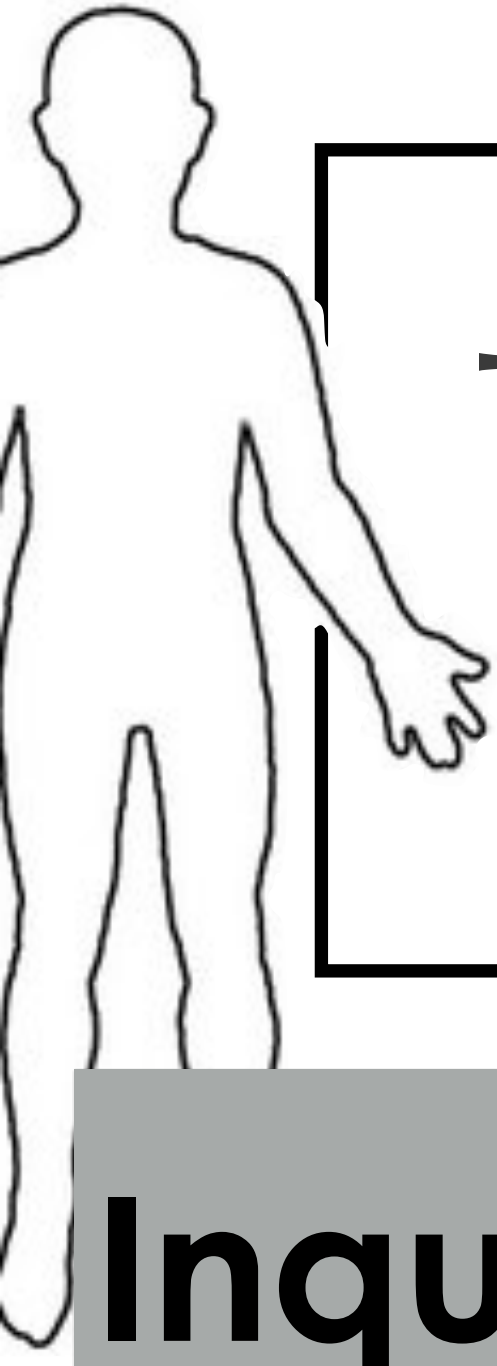
Habitats Review

SCOOT Answers !

Choose four question cards from each of the topics below and record the correct answers on this page. Use a blank page to give to friends so that they can record their own answers to your questions. They should check their answers against your answer page.

	___ 1	____ 2	___ 3	___ 4
Polar Region				
Tropical Rainforest				
Ocean				
Coniferous Forest				
Grasslands				
Desert				

SCIENCE



Grade 4

Teaching Plan

Habitats

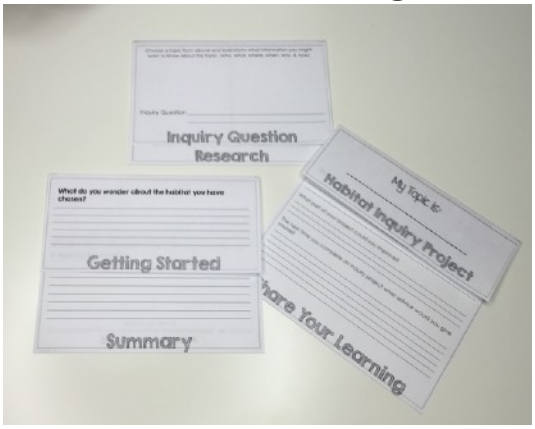
Inquiry Projects

Final Inquiry Projects Booklet

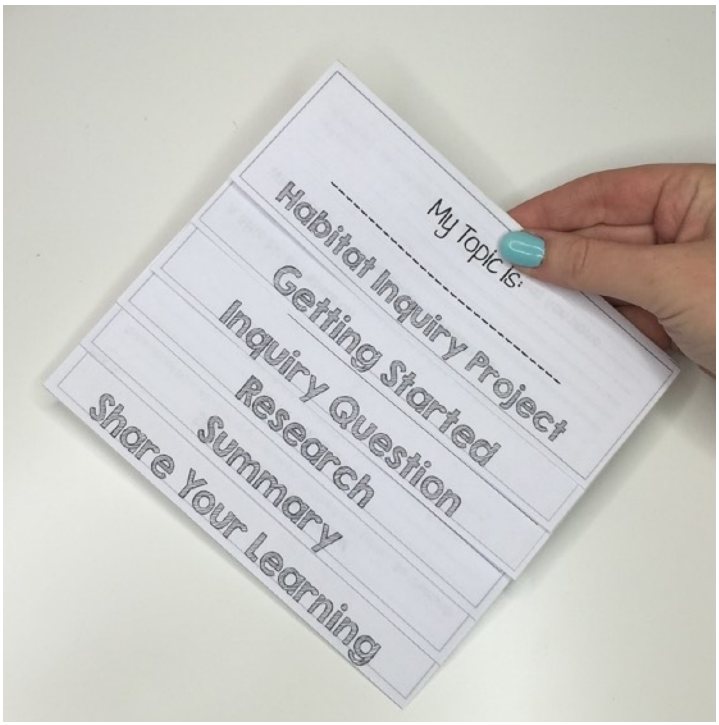
Notes: For the final inquiry booklets, please print the alternate file that is included.

- print double-sided, making sure that the headings are on opposite ends, front and back (flip the second page upside down and photocopy as normal)
- cut out around the outside and fold on the hash marks on the side of the page
- assemble the foldable so that you create a booklet like the one shown below
- staple at the crease and *voila*

Fold Each page



Assembled Inquiry Booklet



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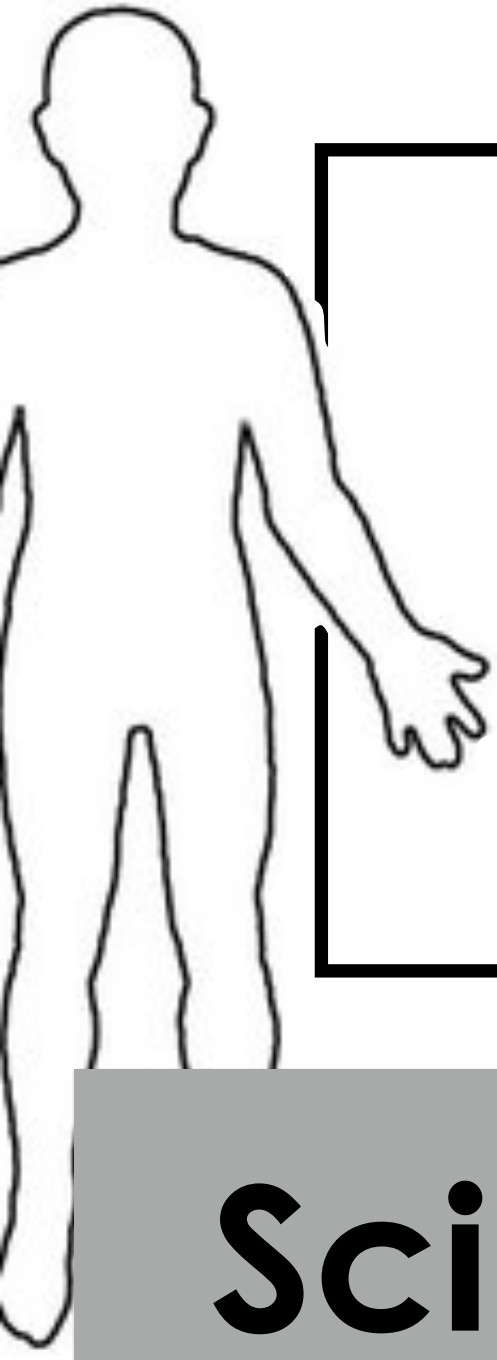


4th Grade

Inquiry Project

Animal Habitats

Science Fair

Science Fair

Grade 4 - Habitats

TEACHER NOTES

Students will choose a habitat and explore problems faced by this habitat and provide possible solutions.

Science Fair - Getting Started

For students to get started on their science fair they will have to choose one of the habitats that they have studied. They will be creating a visual representation of their habitat that helps them to explain the various factors of a habitat. Then, they will look closely at problems faced by that habitat, including destruction and endangered animals.

Have students brainstorm the different questions that they should be able to answer about their habitat model. Some ideas they might generate are:

- What does my habitat look like?
- What plants are in my habitat?
- Describe some food chains/food webs in my habitat.
- Describe the physical features of my habitat.
- How do humans impact this habitat (both positive and negative consequences)?
- Which animals in this habitat are endangered and how can they be protected?

Students will use the flip book to record as they begin their inquiry project to help guide them through the inquiry process.

1. My Inquiry Topic - choose a habitat to learn more about along with the various factors that are impacting animals
    - This should be a more in-depth look at this habitat and the risks that are impacting the habitat, plants, animals, and people.
2. Getting Started - identify **Background Knowledge** of this topic from previous lessons
3. conduct some preliminary Research looking for the answers to the identified learning goals co-created with the other students
4. brainstorm guiding questions that will help them conduct their research
    - Students should think about possible sub topics. A classroom discussion about types of subtopics would be helpful at this point, especially if your students do not have experience with inquiry. Many of the subtopics will be similar. Animals - Plants - Location - Human Impacts - Endangered Animals
5. summarize their information after research is complete

Science Fair

Grade 4 - Habitats

TEACHER NOTES

Students will choose a habitat and explore problems faced by this habitat and provide possible solutions.

6. plan out their sharing of their information
    - I call this a *Show What You Know* in my classroom. Students get to take this opportunity to share what they have learned in a creative way. Students can create a game, make a video, or have a conversation with the teacher. The possibilities are endless. Allowing student choice is inherently differentiated. Try to avoid a one-size-fits-all way to show their thinking. Some of the most interesting *Show What You Know* projects were student-created models of the digestive system using Minecraft.
7. reflecting - provide students with time to reflect on what they learned and what their can improve on
    - Allow students time to identify if they missed something or made a mistake. Sometimes, valuable learning can come from them telling you what they forgot to include. If they know that they forgot it, then they need to know that they are missing it in the first place, and that it is important. Allow time and space for these conversations and reflection.

These inquiry booklets can be assembled by printing out and then photocopying double-sided. If you want to provide your students more space, consider printing out on 11x17 paper by blowing up the original using the features of your school photocopier. My school copier is about 135%.

My Topic is:

_____

Habitat Inquiry Project

What do I already know about this habitat?

Reflection

We were learning about the different habitats and how the life within the habitats have impacted the changes to the environment. In what way did your project meet this goal?

What part of your project are you most proud of?

What part of your project could you improve?

The next time you complete an inquiry project, what advice would you give yourself?

Share Your Learning

Share what you know

Think about how you can share what you learned with others. Be creative!!
PLAN IT OUT BELOW

What do you wonder about the habitat you have chosen?

Getting Started

A little bit of research

Now that you have chosen a habitat that you have studied, find three problems that affect this habitat and write them in the boxes below.

Summary

Think About It

What did you learn about your habitat? Summarize your findings.

Choose a topic from above and brainstorm what information you might want to know about this topic (who, what, where, when, why, & how).

Inquiry Question _____

_____

Inquiry Question

_____

_____

_____

_____

Research

Grade 4 Habitats

Presenter's Name: _____

What are they presenting? _____

_____

	Level 1	Level 2	Level 3	Level 4
Knowledge and Understanding of **key features** of their chosen habitat.	Very poor understanding of their chosen habitat.	Student has some knowledge and understanding of their chosen habitat.	Student has a good amount of knowledge and understanding of their chosen habitat.	Student has a thorough understanding of their chosen habitat.
Thinking: Student is able to describe how different parts of the habitat are related to each other.	Student can describe with limited effectiveness how parts of the habitat (animals, plants, weather, location) are interrelated.	Student can describe with some effectiveness how parts of the habitat (animals, plants, weather, location) are interrelated.	Student can describe with considerable effectiveness how parts of the habitat (animals, plants, weather, location) are interrelated.	Student can describe with thorough effectiveness how parts of the habitat (animals, plants, weather, location) are interrelated.
Application: Student can apply their knowledge of their chosen habitat to identify the positive and negative consequences of human interaction.	Student struggles to apply their knowledge of the basic features of their chosen habitat and identifies with limited knowledge how humans impact the habitat in both positive and negative ways.	Student applies their knowledge of the basic features of the habitat and identifies some ways in which humans impact their habitat in both positive and negative ways. May include misinterpretation.	Student applies their knowledge of the basic features of their habitat and identifies a few ways of how humans impact their habitat in both positive and negative ways.	Student applies their knowledge of many features of their habitat and identifies multiple ways humans impact the habitat in both positive and negative ways.
Quality of presentation.	Student shows poor speaking skills. Student struggles to explain their work in a clear way.	Student shows some speaking skills. Student can explain some of their work clearly.	Student is easily heard by audience. Student can explain their work clearly.	Student shows excellent speaking skills. Student can explain their work in a clear and organized way.

2 stars and a wish _____

_____

_____

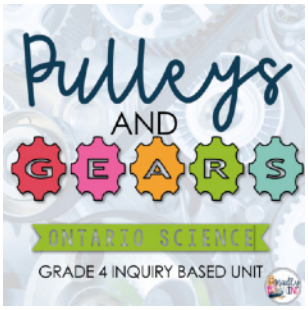
_____

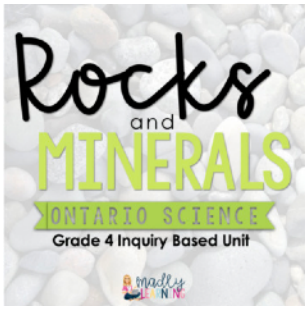
This presentation was assessed by: _____

Check it Out

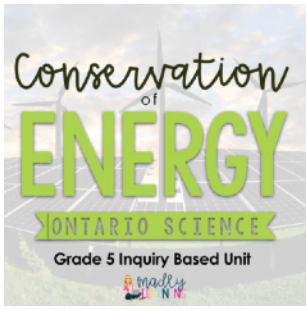
Thank you for purchasing this unit. Please check out my other units in my TPT store. I hope that you enjoyed it and found it useful. If you would like to see more of my products, please check out the links below.

4th Grade





5th Grade



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Combined Grade 4/5

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Science & Social Studies Bundles

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