## GRADE 7 SCIENCE INTERACTIONS IN THE ENVIRONMENT PDF & DIGITAL FORMATS

# SPECIES AT RISK

There are many animals on Earth that we call "at risk" because they may no longer be able to live on this planet. This can be because of

- Not enough resources like food and water

- Another animal invading their habitat

act: These species no longer live anywhere on the planet

## SPECIES AT RISK ASSIGNMENT



describes three species at risk in Ontario. Use the provided websites to help you with your research. Follow the format

- ☐ Title Slide
- ☐ Include the title of your slide show: "Species at Risk in
- Add your name. Choose photos of the
- mountain lion, wolverine, and caribou to decorate your slide.

- ☐ Title: Wolverine Threatened ☐ Title: Carib Explain why the

☐ Title: Mountain Lion —

Explain why the mountain lion

Find an interesting fact about

Include at least one image of

Endangered

is endangered.

## MODIFIED



# 2 Peas and a Dog

Middle School Teaching Resources

## RESOURCE INCLUDES

- √ 16 Detailed Lesson Plans
- ✓ Modified Lesson Content
- ✓ MP3 Audio Files of Articles
- ✓ Self-Marking Google Forms<sup>™</sup>
- ✓ Answer Keys
- ✓ Video Links
- ✓ Lesson Variety: Cut & Match, Fill in the Blanks, Guided Inquiry, Assignments, Graphic Organizers
- ✓ PDF & Google Slides™ Formats

# WHAT'S INSIDE?

- Introduction & Lesson #1 (Class Discussion) Safety Rules & Unit Vocabulary
- Lesson #2 (Whole Class Readings, Videos & Cut and Match) Elements of Ecosystems
- Lesson #3 (Whole Class Readings, Videos, & Sketching) Ecosystems —
   Examples and Interactions
- Lesson #4 (Whole Class Readings, Videos & Cut and Match) Energy Transfer and Food Chains
- Lesson #5 (Quiz) Biotic Elements Quiz
- Lesson #6 (Whole Class Readings, Videos & Cut and Match) The Water Cycle
- Lesson #7 (Whole Class Readings, Videos & T-Chart) Ecological Succession
- Lesson #8 (Videos & Case Study) Ecosystem Limits

# WHAT'S INSIDE? (

- Lesson #9 (Research Project) Species At Risk
- Lesson #10 (Whole Class Reading, Videos & Chart) Human Interactions
  in the Environment
- Lesson #11 (Whole Class Readings, Videos & Cut and Match) Agriculture and Ecosystems
- Lesson #12 (Whole Class Readings and Fill—in—the—Blank Questions) —
   Indigenous Perspectives
- Lesson #13 (Case Study) Electric Cars
- Lesson #14 (Whole Class Readings, Videos & Activity) Human
   Interactions in the Environment
- Lesson #15 (Virtual Lab) Owl Pellet Lab

# WHAT'S INSIDE?

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## **LESSON #12**



### Indigenous Perspectives

#### Lesson Overview:

Students will learn about Indigenous Peoples' perspectives on the environment.

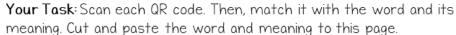
#### Materials Needed:

- ☐ Reliable technology (internet, computer and projector)
- LESSON PLANS

#### leacher Instructions

- 1. As a class, read the book On the Trapline by David A. Robertson and Julie Flett. You could also watch the video version. This book might be found in your local community or school library.
- 2. Have a class discussion on what happened and the book's perspective.
- 3. Then, as a class, read the 'Indigenous Perspectives on Sustainability' reading.
- 4. Then, have students work independently or in pairs to answer the fill—in—the—blank worksheet on the 'Indigenous Perspectives on Sustainability.'
- 5. As a class, review the answers using the provided answer sheet.

## **QR CODE VOCABULARY**



meanir	ng. Cut and paste th	ne word and meaning to this page.			
	QR Code	Word and Meanir	19		
1.		ŀ		ACTIONS IN THE .ND EXPLAIN AC	
	E18244	4			
2.	□ ※回 750984 □ \$6248	2.		wing environment imo	
3.	回信回 八字(20) 回形(3)	INTERA			Plastics in our water can affect animals that live in water ecosystems.
4.		LESS	Too much fishing	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
5.		!	neans less food for ther ocean animals.		
			77	P	No trees mean less food, shelter, and shade for animals
6.	⊞#⊞ %%%%			<i>6</i> ° 17	and plants.

## WHAT'S INSIDE?



## **ANSWER KEY**

## **POLYCULTURE** MONOCULTURE Uses one type of plant or **SAMPLE ANSWERS** crop Has no diversity Pond Uses chemicals ORGANIC **ANSWER** Natural **KEYS** Improves Does not use chemicals

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### INDIGENOUS PERSPECTIVES ON SUSTAINABILITY

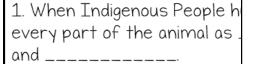
Your Task: Fill in the blanks using the information from the readings. Use the words in the word bank.

### WordBank

threatened food knowledge traditions

> learn caret

## **ECOSYSTEM EXAMPLES**







2. They often believe that th Earth, so they have great re and fire.

An example of an ecosystem is a pond; it has living things like

Pond

A rainforest is an example of a big ecosystem. In this

Rainforest

**MODIFIED** grow LESSON CONTENT

3. Thei

import

4. One

is hum

share

5. In some places, people have Peoples to help them \_\_\_ with wildlife to help ecosyste reduce human-wildlife confli

O https://www

very important; if you remove one part, the whole ecosystem can be in trouble.

For example, the fish could die if the water dries up or gets polluted. No fish could mean no food for many animals. Balance is needed for an ecosystem to survive.

If people cut down trees, the animals would run out of food and would not survive.

Trees are also important because they make oxygen, which humans and animals need to breathe in order to live.

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## SAMPLE LESSON OVERVIEW

## **LESSON #11**

### Agriculture and Ecosystems

#### Lesson Overview:

Students will learn about how different approaches to agriculture impact an ecosystem.

#### Materials Needed:

- ☐ Reliable technology (internet, computer and projector)
- ☐ Video 1: Permaculture Mono vs Poly
- ☐ Video 2: What is Organic Farming? Agriculture Science Bi Campus
- ☐ Video 3: What is Organic Farming? Agriculture Biology Fu
- □ Video 4: How does organic farming compare to conventional?
- ☐ Photocopy a class set or use the provided Google Slides of:

  - Agr
  - LESSON

#### Teacher In

- 1. Read th
- PLAN 2. Then, h togethe

  - What is Organic Farming? Agriculture Biology FuseS
  - How does organic farming compare to conventional? (Thi used, but you may need to read it aloud)
- 2. Hand out the worksheets and have students complete the note-taking graphic organizer.
- 3. Take-up the answers using the provided sample answers and have a class discussion on the topic if time permits

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### TYPES OF FARMING



## **AGRICULTURE AND ECOSYSTEMS**

POL'

Your Task: Place the cut—and—paste notes and place them in the correct farming area. Glue them down once they have been checked by your teacher.

Farming comes in all shapes and sizes. Four f

monoculture

## **AGRICULTURE AND ECOSYSTEMS**

#### Monoculture

chemicals, e

or crop in a Your Task: Read each statement. Then, cut out the notes and place each it can be eas note in the correct area of the provided graphic organizer. diversity. A

### Monoculture and Polyculture

Polyculture Uses one type of plant or together, lik means the crop, the ot

farming is t ! Uses many

Organic fari does not use natural way quality.

Conventiona crops grow. also cause n

crop READING Uses chem

**ACTIVITY** 

Does not use chemicals

Uses chemicals

Natural

quality

Has diversity

Can also cause more greenhouse gases

Can pollute soil and water

### SAMPLE ANSWERS

 Uses one type of plant or crop Has no diversity Monoculture Uses chemicals · Uses many types of plants **ANSWER** CONV KEY

Organic

Improves soil and water quality

Conventional

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Uses chemicals

- Can also cause more greenhouse gases
- Can pollute soil and water

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## INTRODUCTION & LESSON 1

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## SCIENCE SAFETY RULES



### 1. LISTEN

- ✓ To ALL the teacher's ins
- ✓ Know the location of the

Complete the following true/false questions on safety:

1. When you clean up, wash your hands with water.

2. Before you begin, you must listen to ALL the

teacher's instructions.

NTRODUCTION:

SCIENCE SAFETY

### 2. ATTIRE

- ✓ Wear safety goggles ar
- ✓ Tie up any loose items (
- ✓ Woor alocad too comp

### 3. RE

### J. KL

SV

### ✓ Th

### 4. TC

### ✓ In there is a spill.

✓ Do not taste test any ite

### 5. CLEAN-UP

- ✓ Thoroughly wash all used
- ✓ Wash hands with soap a

O bttnc://w

- 7. Harrane an 10015 with care, especially sharp object
- 8. Wear open—toe shoes and use gloves/goggles as needed.
- 9. Read labels on chemicals used carefully (e.g., WHMIS symbols)
- 10. Do not tell the teacher if there is a spill or if an item is broken/faulty.

## **QR CODE VOCABULARY**



Your Task: Cut out each word and meaning. Then, paste the word and meaning to this QR Code page.

		:	<b>-</b> 1
	QR CO	DE VOCABULARY 🔍	lements that need
		code. Then, match it with the word and its he word and meaning to this page.	
	QR Code	Word and Meaning	ner
1.			other living things.
İ			ic
2.			d in an ecosystem.
3.		UNIT VOCABUI	
4.			and oxygen to an ne sun's energy.
5.			c n an ecosystem. ants, animals, etc.
6.	■50 9890 ■270		ind adog.com

## LESSON 2 & 3



## WHAT IS AN ECOSYSTEM?



### BIOTIC VS. BIOTIC SORT AND MATCH

#### What is an ecosystem?

An ecosystem is a place where livir where insects, animals, and plants pond with fish, frogs, insects, wate too, like a rainforest with trees, pla rivers, and more.

Cut out the titles and images below. Match the correct title with all the images that relate to it. Once your teacher has checked the pieces, glue them onto the back of the reading.

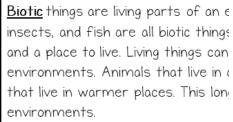
### Biotic Elements

What are the parts of an ecosysti

ELEMENTS OF The ecosy biotic (livin **ECOSYSTEMS** 

Abiotic th importan<sup>a</sup> sunlight,

thing is how a plant needs soil and a fish needs water.





















**ECOSYSTEM EXAMPLES** 



## **EXAMPLES AND INTERACTIONS**

Your Task: Sketch or cut/paste images to create the ecosystem examples

Pond



### Rainforest

rainforest is an example of a g ecosystem. In this osystem, trees grow fruit

## **EXAMPLES AND** INTERACTIONS OF ECOSYSTEMS

Rainforest



ees are also important ecause they make oxygen, hich humans and animals need breathe in order to live.

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## LESSON 4 & 5



## **ENERGY TRANSFER IN AN ECOSYSTEM**



Energy is very important in an ecos Energy can be passed from one thin transfer.

Sunlight is the main source of energused by plants, and when an animal the animal's body, which may then This energy transfer by food is called

A food chain transfers food and en another. Every time food or energy

The images on the next page show One is of an eagle. The eagle is at the

The ne

## **FOOD CHAINS**

- 1. Cut out the food chain examples below.
- 2. Create three examples of food chains in the correct order.
- 3. Once the food chain order has been checked by a teacher, glue it onto the Food Chain Examples page.



Animals Consum natural apex co

- ✓ Food Chain: When energy is tro
- ✓ Producers: Items at the botto animals.
- ✓ Consumers: These animals get

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## **ECOSYSTEM QUIZ**

PART 1: ABIOTIC OR BIOTIC?

For each item on the left, decide whether it is Abiotic (non-living) or Biotic (living). Circle your answers.

ECO:	SYST DUIZ		
ROCK	ABIOTIC		







## LESSON 6 & 7



## THE WATER CYCLE



The V

### QUIZ

Directions: Read each statement. Then, circle whether the statement is true or false.

Water is very important for all living animals, and humans would not sur hydrogen and covers 70% of the Edplanet for many years because of	sun heats up the water, turning

The water cycle includes:

Evaporation: W which then ris

Condensation: cools to make

and the whole

### Precipitation: clouds that it snow, hail, etc.

Because of pollution, sometimes di areas of the planet, there is no pre have many storms that cause floo can sometimes affect the water

O https://w

THE WATER **CYCLE** 

The Earth is 100% water.

Condensation is when water

falls to the ground.

the air.

True/False

True/False

True/False

True/False

True/False

C https://www.2peasandadog.com

### **ECOLOGICAL SUCCESSION**



### **ECOLOGICAL SUCCESSION ACTIVITY**

Your Task: Read each statement and put the number for that statement in the correct column of succession.

1. Takes longer to complete

**ECOLOGICAL** n can also 2. Happens on en or pollution.

ion and 3. Happens to an

SUCCESSION 4. A forest fire i

5. A volcano

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A voicano erup	aled Where	
TO TO SALE OF THE SALE OF THE SALE OF		Over time, this new rocky land will
PRIMARY SUCCESSION	SECONDARY SUCCESSION	many animals and plants.
	020011371111 00002001011	rea was lived on before, and
		thauake fire volcano eruption

efore. Over time, the forest will other plants slowly appearing. in enough time, the area will

m goes through slow changes

w living things replace other living

event, such as

ne has ever

volcano

ndadog.com

nts begin to grow after a forest primary succession. This is ary succession, which ed to grow. In here, so it will take

## LESSON 8 & 9



## **ECOSYSTEM LIMITS**

All ecosystems have a limit to how many living things can exist in that ecosystem. This limit is called carrying capacity, and this is because of limiting factors, such as available sunlight, weather, temperature, food, water, shelter, predators and mates. If these important items are not available, living things will start to die off.



Watch the video "Ecological Carrying Capacity." Then, explain what happens when too many fish live in the bowl.

### **CASE STUDY: URBAN COYOTES**

Instructions: Watch the video: "The Rise of the Urban Coyote." As you watch the video, cut and paste or write any new information you learn about coyotes.



**ECOSYSTEM LIMITS** 



Watch the video "Limiting Factors in an Ecosystem." Then, explain what the limiting factors are in the fish bowl?

What Questions Do You Still Have **About This** Animal?

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## **SPECIES AT RISK**



## SPECIES AT RISK ASSIGNMENT



Your Task: For this assignment, you will create a slideshow that describes three species at risk in Ontario. Use the provided websites to help you with your research. Follow the format provided to help you stay organized.

C https://www.2peasandadog.com

Ind water

at we call "at risk" because

Some of the

because of

than other

this planet. This can be

bitat

#### Slide 1:

☐ Title Slide

☐ Include the t show: "Specie Ontario."

☐ Add your nam Choose photo

mountain lion. caribou to ded

### Slide 2:

SPECIES AT

blanet. **RISK** 

**ASSIGNMENT** gered.

#### Slide 3:

☐ Title: Wolvering ☐ Explain why t

the wolverine.

- threatened. ☐ Find an interesting fact about ☐ Find an interesting fact about
- ☐ Include at least one image of the wolverine.
- the caribou.
- ☐ Include at least one image of the caribou.

## LESSON 10 & 11



### **HUMAN INTERACTIONS IN THE ENVIRONMENT**

An ecosystem is made up of abiotic (non-living) and biotic (living) things. These things help each other survive and create an ecosystem. For example, insects (like bees) do a lot to help an ecosystem stay balanced. However, some human activities have made the ecosystem unbalanced, which has changed the

pelow.	111030 1101111
	This happe

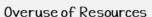
so humans Plants and 1 and shade. 2.

Deforestation

environment. Some of these harm HUMAN INTERACTIONS IN THE ENVIRONMENT **CUT AND EXPLAIN ACTIVITY** 

- Cut out the following environment images and statements.
- Place them into the correct category of Human Activity

## HUMAN INTERACTIONS IN r water animals THE **ENVIRONMENT**



less food t sharks, etc turn, affel ecosystem humans or

O https://w/



No trees meanless food, shelter, and shade for animals and plants.

## **TYPES OF FARMING**



## AGRICULTURE AND ECOSYSTEMS

Your Task: Place the cut—and—paste notes and place them in the correct farming area. Glue them down once they have been checked by your teacher.

MONOCULTURE

POLYCULTURE

s. Four farming methods are conventional farming.

er uses only one type of plant of corn or only potatoes. While ge, it does not provide much e farming is that it uses

## AGRICULTURE AND **ECOSYSTEMS**

ORGANIC

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and machines to help its produce a lot of food, they can nd can pollute soil and water.

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# LESSON 12 & 13



## **INDIGENOUS PERSPECTIVES** ON SUSTAINABILITY

### INDIGENOUS PERSPECTIVES ON SUSTAINABILITY

Your Task: Fill in the blanks using the information from the readings. Use the words in the word bank.

#### WordBank

knowledge threatened food traditions

caretakers medicine

the ecosystem. They have been waste anything when using plan they hunt animals like deer, the

Indigenous Peoples are really in

1. When Indigenous People hunt animals like deer, they use \_, clothing, tools,

### INDIGENOUS Indige so the

of the PERSPECTIVES becaus air, water, land, Indige

Their traditions and knowledge different plants and animals al

to mak

For example, the Northern Cre many geese, they will run out too many trees, they will lose They understand that they only natural resources with care so affected.

- 3. Their \_\_\_\_\_ and \_\_\_\_ can play an important role in keeping different plants and animals alive.
- 4. One problem that can happen in ecosystem conservation is human-wildlife conflict. This happens when animals who share the same area with humans become
- 5. In some places, people have been asking Indigenous Peoples to help them \_\_\_\_\_ how to live in balance with wildlife to help ecosystems survive and hopefully reduce human-wildlife conflict.

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## **ELECTRIC CARS**

#### What Ts An Electric Vehicle (EV)?

An EV or electric vehicle is a vehicle that is powered by electricity instead of gas. Electric vehicles run on

### **POSITIVES AND NEGATIVES ACTIVITY**



Your Task: Read each statement and decide if it is positive (good) or negative (bad) information about electric cars. Colour the positives in green and the negatives in red.

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EVs have to be charged regularly depending on how much a person

If batteries are not disposed of properly, they can contaminate soil

**ELECTRIC** Material for the power cell of needs to be mined from the B taken to factories around the **VEHICLES** 

Allowed to drive in the HOV (hi occupancy vehicle) lane when are alone (you usually need 2 d more people in the car to drive in this lane)

and processed.

Electric vehicles cost more to buy than a gas car, although some places offer tax breaks or rebates for people who choose to buy them.

Electric vehicles are very quiet.

to charge. It only takes about 5 minutes to fill up a gas tank.

They also need less maintenance because they don't need oil changes The brakes generally last longer on

In some places, it is cheaper to pay for electricity than gas.

Electric vehicle at a charging station

### gatives About Electric Vehicles

Electric vehicles cost more than gas cars, although some places offer tax breaks or rebates.

EVs must be charged regularly depending on how much a person

> can only drive between 0 kilometres before o be charged. Some EVs rther, 320 — 480 s on one charge.

he people, the distance on most EVs is too short to make driving one an option. To solve the distance problem, more charging stations are being installed in many locations, such as near shopping malls, restaurants, and other public spaces.

## **LESSON 14 & 15**



## **COMPOSTING**



Composting is the breakdown o become nutrients (food) and ar People can use green bins, purc or have a compost heap in their in it.

Some items that are good for a tissues, paper towels, tea bags,

#### **ADVANTAGES**

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- Limits w
- Materials are free
- Anyone d
- Eco-frie
- Can prod fertilizer
- Helps wit
- Soil is giv use agair
- · Easy

### **COMPOSTING ACTIVITY**

Your Task: After watching the video 'Organics Recycling,' read the items in the compost bin and cross out the ones that do not belong



## HUMAN INTERACTIONS IN THE ENVIRONMENT

**PIZZA** NUTS **DOG POO** 

### **OWL PELLET DISSECTION OBSERVATIONS**

What animals did the owl eat?

water vole snake house mouse

**LESSON #15** 

field vole song bird

rat

rabbit lizard

Owl Pellet Lab

Lesson Overview: Students will observe the dissection of an owl pellet to learn about the energy transfers related to the barn owl.

#### Materials Needed:

- ☐ Reliable technology (internet, computer and projector)
- ☐ Video 1: Taking a closer look at owl pellets
- ☐ Video 2: "Barred Owl Chick Regurgitates Pellets (Incredible Close Up!)"
- ☐ Video 3: Owl Pellet Dissection When the Owl Sings [EDU]
- ☐ Photocopy
- Owl Pe

### es were found?

hipbone (pelvic)

der blade vertebrae

OWL PELLET elbow

#### Teacher Inst

- 1. Introdu look at a (Incred
- 3. Tell students they will observe a full owl pellet dissection via video: Owl Pellet Dissection - When the Owl Sings [EDU]
- 4. Inform them that they are to observe what is found in the dissection using the 'Owl Pellet Dissection Observations' worksheet. Students can circle or highlight the answers as they are viewing the video. You may choose to do this together as a class or have students complete this task independently or in pairs.
- 5. Have a short discussion about energy transfers related to the barn owl referring to the "web" at the bottom of the worksheet.

als the owl ate:

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## LESSON FORMATS









RESOURCE CAN BE USED IN-PERSON OR ONLINE