

TEACHING GUIDE



For ages
6 to 8 years

Dear Educator,

Congratulations, you have joined the education revolution with ENGAGE magazine and teaching beyond the textbook. By giving your students the ENGAGE edge, you are taking them on a lifelong quest for knowledge. You are inspiring them to take charge of their learning by teaching with the most unique educational product in the world. You exemplify teaching excellence and expect nothing less from your students and the materials you use in the classroom.

In this issue, you and your students travel the world to learn how people are helping save orphaned animal babies. Students learn that people interact with and are part of the natural world. After raising animal babies, students discover how wild winds generate fierce storms, including sandstorms, cyclones, monsoons and tornadoes. Then they splash into water to learn how water takes on the shape of its container and changes state.

This Teaching Guide provides a framework you can use to teach these articles and link them to your curriculum. They can be used for whole-class, small-group and individual instruction.

Each lesson develops students' ELA skills and teaches science concepts. Use all the lessons, activities and worksheets, or pick and choose the ones appropriate to your teaching style.

ENGLISH • STEM • ENVIRONMENT • SOCIAL STUDIES • CITIZENSHIP
engage
LEARNING

Vol 1, Issue 2, Level 2

TABLE OF CONTENTS

Pages 2–7 Raising Babies

Pages 8–12 Wild Weather

Pages 13–14 Follow a River

MEET THESE STANDARDS

- ✓ **Language Arts:** Students will read for meaning and use reasoning strategies.

Students will understand key details in a text.
- ✓ **Vocabulary:** Students will learn content vocabulary.
- ✓ **Life Science:** Students will understand that they are part of the natural environment and interact with it.
- ✓ **Earth Science:** Students will learn about different kinds of severe weather.

Students will understand the properties, forms and changes in water.
- ✓ **Citizenship:** Students will understand that their actions affect the natural environment.

Note: We incorrectly captioned and credited the magazine's cover photo. It should read:
A tiger splashes water Photo: Room the Agency/Alamy

RAISING BABIES

LANGUAGE STANDARDS

Students read for meaning, demonstrating both understanding and personal response to what they read. They use reasoning strategies and knowledge to solve complex problems related to the text.

LIFE SCIENCE STANDARDS

Students will understand that human interactions affect the natural environment. They will understand the relationship between organisms and their physical environment.



BEFORE READING

BUILD BACKGROUND

- Start an animal-word snake on the board by writing the name of an animal.
- To continue the word snake, use the last letter of the word to write the name of another animal. For example, if you write 'monkey' as the first animal, the second could be 'yak'. If you write 'kangaroo' as the first animal, the second could be 'ostrich'.
- Ask students where they'd most likely see the animals listed in the word snake. Draw three big circles on the board. Label the first circle 'Wild Animals'. Label the second circle 'Farm Animals'. Label the third circle 'Pet Animals'.
- Invite students to come up to the board and write the animals listed in the word snake in the appropriate group. Ask students to explain their groupings.
- Let the students know that they will read a story about wild animal babies.

READY TO READ

- Hand out copies of ENGAGE magazine and have students turn to page 2.

- Read the story using voice modulation and pronunciation.
- ASK the students questions about babies, such as:
 1. How did you look as a baby? Do you look the same now as you did in your baby pictures?
 2. How did you move around as a baby?
 3. What kinds of food did you eat or drink as a baby?
 4. How did you ask for what you wanted or needed?
 5. Do you think animal babies need as much care as a human baby?
 6. Are the animals in the story wild or pet animals? Ask the students to explain their answer.
 7. What is an orphan? (*An orphan is a child who has lost his/her parents.*)
 8. What is an orphanage? (*An orphanage is a place where orphans are taken care of.*)
- SHARE: Some animals take care of their babies just like humans take care of their children. For example:
 1. Bats care for their young by bringing food back to their roosts to feed them.
 2. Dolphins keep their babies close to them for up to five years.
 3. Kangaroos carry their joeys in their pouches. They nurse their joeys with milk. They keep the joeys safe and warm in the

- pouch until they are too big to fit into it.
- 4. A tiger mother takes care of her cubs until they are about two years old.
- 5. Birds feed their young until the fledglings can fly out of the nest to find their own food.

AFTER READING: EXTENSION ACTIVITIES

LANGUAGE ARTS CONNECTION

SESSION FOCUS: ANIMAL BABIES

- Quiz students on the names of baby animals. For example: Dog – puppy; cat – kitten; lion – cub.
- Show students images of wild animals and tell them what their babies are called. For example:
 1. elephant – calf
 2. giraffe – calf
 3. kangaroo/koala – joey
 4. monkey – infant
 5. spider – spiderling
 6. tiger – cub
 7. zebra – foal
 8. owl – owlet
 9. horse – foal
 10. fish – fry
 11. whale – calf

SCIENCE & LANGUAGE ARTS CONNECTION

SESSION FOCUS: ABOUT ORANGUTANS

- Draw students' attention to the image of the baby orangutan on pages 2–3. Ask them to describe it. Read the text on the pages and discuss with students whether baby animals like the orangutan should be separated from their parents and kept as pets, or allowed to remain with them.
- Share the following information with students:
 1. A mother orangutan carries her infant when moving from place to place. She also feeds it and sleeps with it in her nest. For the first four months, the infant is carried on its belly and is never without physical contact. When an orangutan reaches the age of two, its climbing skills improve and it travels

- through the treetops holding hands with other orangutans.
- 2. Orangutans live in the rainforests of the islands of Sumatra and Borneo. The word *orangutan* is Malay for 'man of the forest'. Orange or red hair covers an orangutan. This helps to camouflage an orangutan hiding in the shadows. It also helps it to stand out in bright sunlight. An orangutan's arms are longer than its legs and its arm-span is longer than its height.
- 3. An orangutan's hands are similar to human hands. Since orangutans spend most of their time in trees, their long arms, fingers and toes are quite useful as they swing from branch to branch. When on the ground, orangutans walk on all fours, using their palms or fists.
- 4. An orangutan sleeps in the trees. It makes nests of leafy branches, and it uses large leaves as umbrellas.
- 5. An orangutan eats fruits, vegetation, honey, the bark of trees, insects and bird eggs.
- 6. Orangutans are considered endangered due to habitat destruction and deforestation.

Orangutan Word Builder

Ask students to work in pairs and make as many words as they can from the word 'orangutan'. For example: tan, an, gut, goat.

Orangutan Word Web

Have students draw an outline of an orangutan and create a word web to describe the orangutan. For example: kind of ape, big, eats fruits, swings on tree branches, makes nests of leafy branches, red-orange hair, hands similar to humans, arms longer than its legs, arm-span longer than its height, uses tools, endangered, etc.

Visit this site for more activities and information related to orangutans: <http://orangaware.org/materials.html>

ART CONNECT

You need:

- an orangutan cut-out
- orange and brown paint
- paint brushes
- orange and brown wool

To do:

Hand out the orangutan cut-out. Have the students paint it. Once the paint dries, ask students to glue orange and brown cotton wool to the body. Hang some paper cut-outs of trees, creepers, etc. on the bulletin board and display the students' art.

SCIENCE & LANGUAGE ARTS CONNECTION

SESSION FOCUS: ABOUT ELEPHANTS

- Ask students to describe an elephant. You can display a picture of an elephant to help students.
- Discuss the different parts of the elephant with the students.
 1. Trunk – An elephant's trunk is a combination of nose and upper lip. It uses its trunk to smell, to breathe, to feel, to suck in water, to pick up things, to trumpet and to talk with other elephants.
 2. Eyes – An elephant has small eyes compared to the size of its head.
 3. Ears – An elephant keeps cool by fanning its large floppy ears.
 4. Tail – An elephant uses its tail to shoo away flies and other insects.
 5. Legs and feet – An elephant walks slowly but can run very fast.
 6. Tusks – An elephant has two tusks made of ivory. They are really teeth used for digging, pushing and fighting. An elephant has four inside teeth for eating.
 7. Skin – An elephant has wrinkles. An elephant keeps cool by spraying water on its skin. Its wrinkles hold the water, which helps it stay cool.
 8. Food – An elephant eats plants, such as fruit, vegetables, grains, leaves, grass and bark.
 9. Family – An elephant lives in families. Several families living together form a herd. The leader of the herd is usually the oldest female, called the matriarch.
 10. Babies – Elephant babies like to play. They chase one another, roll on the ground and play tricks on adults.
 11. Swimming – An elephant likes to wallow in mud or in water. This protects its skin. Elephants are very good swimmers.

Solve the BLM – Elephants

Ask students to fill in the chart for 'Elephants' as per the sample below:

can	have	are
suck water with their trunk	trunk	big
pick up things with their trunk	small eyes	heavy
eat plants	large floppy ears	good swimmers
	small thin tail	
	wrinkled skin	

SESSION FOCUS: ABOUT SLOTHS

- Re-read pages 8–9. Remind students to read words from left to right. Point to each word as you read it aloud while students follow along in their own copies of the magazine.
- Draw students' attention to the picture of sloths and how they look. They look sleepy and lazy, which is why people call them sloths. Tell students that sloths sleep for up to 20 hours a day! They rarely come down from trees. They leave the trees about once a week to relieve themselves. On the ground, they slowly move about by digging their front claws into the mud and dragging their bodies. Explain to students that since sloths move very slowly and have very thick fur on their bodies, creatures like moths, beetles, cockroaches, fungi and algae live on them. Draw attention to the sloth's green coloured body. Algae cause the green colour. This helps sloths hide in the trees and protects them from predators.
- Revisit the concept of Camouflage presented in Issue 1.
- Draw students' attention to the picture where the baby sloth is kept warm in a blanket and is fed milk. State: Some kinds of sloths eat mainly tree buds, shoots, fruit and leaves. Other kinds of sloths also eat insects, small reptiles and birds.
- Explain how mother sloths take care of their babies. Mother sloths feed milk to their babies. A baby progresses to solid foods four days following its birth. It licks food particles from its mother's mouth. Mothers show their babies how to climb down trees.

- Have the students listen to the story of the sloth from the link <https://www.youtube.com/watch?v=LRPTF3G5sF4>
- 'Slowly, Slowly, Slowly' is about a sloth who lives in the South American jungle with other animals. As each animal comes along and asks the sloth why he is so slow, he ignores them, until a jaguar asks why the sloth is so lazy. The sloth takes exception to this last question and gives the jaguar a clear response about the difference between being tranquil, laid-back and peace-loving, and being lazy.
- Ask students questions related to the story and extend it further. For example:
 1. Where does the sloth live?
 2. Does it live by itself or with others?
 3. What other animals are in the story?
 4. What does the jaguar say?
 5. How does the sloth differ from other animals?
 6. What does the sloth eat?
- Discuss whether, because the sloth moves slowly, the students think it is a lazy animal. Ask the students to list the benefits of resting and going slow. Should human beings learn from the sloth? Why?
- Ask students to name an animal that is exactly the opposite of the sloth – an animal which is fast. Discuss with them why they think the animal is most unlike the sloth.

ACTIVITY

Make a word wall with the words the sloth uses to describe itself. Discuss the meanings of all the words and ask students if they would be able to use any of the words to describe themselves. Ask them to write a short paragraph to describe themselves.

ART CONNECT

You need:

- paper plates
- art sheet/chart paper
- glue
- brown, yellow, ochre crayons
- black colour pencil

To do:

- Cut each paper plate in half.



Image source: <http://www.daniellesplace.com/images34/sloth-paper-plate-craft-.jpg>

- Draw outlines of the sloth face (one for mother sloth and one for baby sloth) and four limbs on art paper.
- Hand out half of the paper plate, the face and rear and front leg outlines to each student.
- Ask students to cut out the parts, colour them and then assemble the sloths' legs, faces and body according to the image above.

ENVIRONMENTAL MANAGEMENT CONNECT

SESSION FOCUS: PROTECTING HABITATS

- Ask students the following questions: What are living things? Give some examples of living things. What do living things need to survive? What does it mean to survive? What is a need? What things do animals need to survive?
- Write the students' responses on the board. Ask them to state whether the place they live in has warm or cold weather and to give examples of some animals that live in their surroundings. Would these animals be able to live in a different environment? Why or why not?
For example: Where does an emperor penguin live? (*Antarctica*) Is the climate there cold or hot? Do you think an emperor penguin would be able to survive in the hot climate of India? Why? (*No, an emperor penguin cannot survive in warm climates.*)
- Show students the video **Habitats** ['What](#)

are Habitats?' <https://www.youtube.com/watch?v=p15lrEuhYmo>

- A habitat is a place in nature where plants and animals grow and live.
- Explain that orangutans live in rainforests. Rainforests are forests with tall trees, mostly warm climates, and rain nearly every day of the year. Rainforests grow in many places, including Africa, Asia, Australia and Central and South America. The largest rainforest in the world is the Amazon rainforest in South America. In earlier times, orangutans roamed over thousands of kilometres of rainforest in Southeast Asia. Today, they survive only on the islands of Borneo and Sumatra. Sloths live in the rainforests of Central America and South America. Due to rainforests being destroyed, illegal hunting and the pet trade, orangutans, elephants and sloths are losing their habitat and dying out. The number of animal orphans is increasing.
- Display a world map or a globe to show students where the rainforests are in relation to where they live.
- Ask students: What are some animals you know that are endangered? What can you do to protect them?
- SHARE: The more we recycle and reuse stuff, the less we cut down forests for our own use. Another way to help endangered animals is to spread awareness. Students can do this by making posters and displaying them in school or their neighbourhoods, and by sharing what they have learned.

RESEARCH PROJECT

Students can do a research project on rainforests and the animals found in rainforests. They can also find out about some organisations that work to protect endangered species and make a list of things they can do to help.

LANGUAGE ARTS CONNECT

SESSION FOCUS: STORY WRITING

- Tell students that they are animal caretakers working at an orphanage. Ask them to write

a story about their experiences caring for the orphans. Tell them that the stories can be about some of the antics they see the babies perform. They can choose to write about orphaned sloths, orangutans or elephants.

- They can also illustrate their stories.
- After they have completed their stories, ask them to share what they wrote and drew.

VIDEO HUB

Inside a Baby Sloth Orphanage and Rescue Centre <https://www.youtube.com/watch?v=ZJUfiEFh1w4>

Odd Facts about Sloths <https://www.youtube.com/watch?v=eq42qcpTo1o>

We Love Orangutans <https://www.youtube.com/watch?v=1u6DBuRmRKM>

Missing Orangutan Mothers https://www.youtube.com/watch?v=-Umi_eZGqMg

My Animal Friends Elephants <https://www.youtube.com/watch?v=9jCf62bRi6Y>

About Elephants <https://www.youtube.com/watch?v=LpzwxDqVDtc&t=45s>

Elephant Babies <https://www.youtube.com/watch?v=oH4MI8vxW8E>

The Amazon Rainforest <https://www.youtube.com/watch?v=tRlslay6Z4M>

Endangered Animals of the Rainforest https://www.youtube.com/watch?v=iX7ai4_cmkA

Note: These are third-party videos and the links may have been removed since we last checked them.

ELEPHANTS

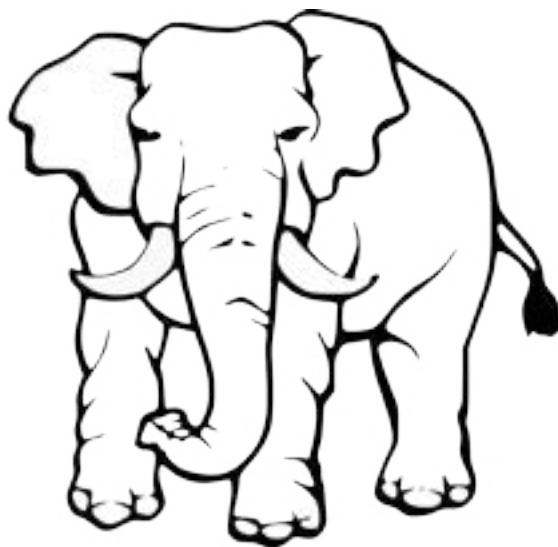


Image source: <http://clipartfans.com/post/elephant-clip-art-19.html>

can	have	are

How are elephants similar to humans?

How are elephants different from humans?

WILD WINDS MAKE STORMS

LANGUAGE STANDARDS

Students read for meaning, demonstrating both understanding and personal response to what is read.

EARTH SCIENCE STANDARDS

Students will be able to give examples of stormy weather such as monsoons, tornadoes, sandstorms and typhoons.



BEFORE READING

BUILD BACKGROUND: THE OUTDOOR CLASSROOM

SESSION FOCUS: TYPES OF WEATHER AND WEATHER VOCABULARY

LEARNING OUTCOME: Students will be able to identify and name different types of storms.

- Have a discussion with the students about the season they like the most. Invite them to the front of the class to talk about it. While they talk they may use words such as warm, sunny, rainy, cold, snowy. Note these words on the board.
- Next ask students to look outside the window and describe the day's weather. If possible, take them outside and encourage them to observe the sky, the wind, the sun, the trees swaying, the leaves on the trees, the birds flying, etc. Discuss their observations.

READY TO READ

- Before beginning to read, explain to students that sometimes weather is severe or unusual. Severe weather conditions are dangerous and can cause major damage to us or the environment. Explain that strong winds can cause severe weather conditions like tornadoes, tropical cyclones, sandstorms, blizzards, hurricanes and monsoons. Inform students that they are going to read about some severe weather conditions.
- Hand out copies of ENGAGE magazine and have students turn to pages 10-11. Direct

their attention to the image on the spread and discuss it.

- Read pages 10-19 from the magazine. Focus on pronunciation and voice modulation. Students can also follow the sentences by tracking the words with their fingers.

AFTER READING: EXTENSION ACTIVITIES

STEM CONNECTION

SESSION FOCUS: ABOUT SANDSTORMS

Students will understand how wind affects objects.

You need:

- a piece of paper, fabric
- a plastic cup
- a metal spoon
- a pencil
- a straw
- a crayon
- cotton wool
- a book
- a sheet of chart paper titled: 'What the wind can blow', with the following columns:

Items wind can blow	Items wind cannot blow

To do:

1. Show students a variety of objects made of paper, fabric, wood, plastic and metal. Ask them to predict which objects the wind will or will not blow. Record their predictions on chart paper.
2. Invite students to take the objects outdoors to test their predictions. Ask them to place the different objects on the ground. Which items will the wind blow? Discuss how the wind blew about light objects like paper and cloth but couldn't blow items like the crayon or spoon. (This explains to students the concept that wind can move objects. When we explain the concept with the activity 'Tornadoes' we can elaborate by adding that when winds are very strong they can move heavy objects too.)
3. Re-read pages 12–13.
4. EXPLAIN: Most storms bring rain or snow but sandstorms form in dry deserts. When strong winds blow in these areas, they lift the sand from the ground. Discuss the meaning of the words creep, saltate and suspend.
5. Inform students that sandstorms strike with little warning, making driving conditions dangerous. You can't see anything and sand can clog your eyes, mouth and nose.
6. Sandstorms are common in the Sahara Desert. Show students the location of the Sahara on the world map.
7. Discuss how storms occur not only on Earth but also on other planets. Recall examples of the Great Red Spot on Jupiter and the sandstorms on Mars from issue 1.

SCIENCE CONNECTION

SESSION FOCUS: ABOUT THE MONSOON

- Draw the diagram of the water cycle on the board and ask students to identify the various stages. Revisit the concepts.

— **Evaporation:** Explain that the heat of the sun evaporates water from the seas, rivers, oceans, etc. Evaporating water forms a vapour that rises into the sky. (Boil some water in a kettle so that students can see the water vapour, steam, rising.)

— **Condensation:** As water vapour rises, it cools and condenses into liquid water on dust grains floating in the sky. This forms clouds.

— **Precipitation:** When a cloud gets too heavy, water falls back to the ground as rain, snow or ice.

- To consolidate the concept, show the students these water cycle videos:

The Water Cycle – How Rain is Formed

<https://www.youtube.com/watch?v=s0bS-SBAgJI>

The Water Cycle Song <https://www.youtube.com/watch?v=TWb4KIM2vts>

- Ask students to describe the monsoons in India. Prompt them by asking the following questions: What clothing or items do you use to protect yourself from the rains? Which animals or insects are most often seen during monsoons? (*Frogs/toads, peacocks, earthworms, snakes, etc.*) How do rains help? (*They help plants such as crops grow. They provide drinking water.*)
- Revisit pages 14–15 in the magazine. Direct students' attention to the images of children having fun in the monsoon. Ask students if they like the monsoons or not, and then ask them to give reasons for their response.
- Explain that in India the monsoon begins right after summer. Monsoon winds blow from the southwest. Winds carry moisture from the Indian Ocean and Arabian Sea and bring heavy rain from June to September. Point out the Indian Ocean on the physical map of India.

STEM CONNECTION:

ACTIVITY: *Make it Rain in a Jar*

You need:

- a glass jar
- hot water
- ice
- a plate

To do:

1. Fill about a quarter of a glass jar with hot water.
2. Put some ice in a plate and place it on top of the jar.
3. After a while observe tiny droplets of water forming on the sides of the jar. Explain to the students that the hot water caused water vapour to form, which evaporated. The ice

cooled the vapour, which condensed, finally forming precipitation.

ACTIVITY: The Sound of Thunder

You need:

a brown paper bag

To do:

1. Blow into the brown paper bag and fill it with air. Twist the open end to close it. Hit the bag with your hand.
2. It will make a loud sound like thunder. Ask students if they have heard thunder. Sometimes when it rains very heavily we hear thunder and see lightning. Explain to students that lightning causes thunder. Lightning heats air, which expands rapidly, cools and collapses. The collapsing air is the sound of lightning, or thunder.
3. Share with students a few safety steps to take when there is thunder and lightning. SHARE: When you see lightning flashes, go to a safe place such as a building. Stay away from windows. Crouch down in an open area if there is no building. Stay away from trees and out of water as water is a great conductor of electricity. Avoid metal. Do not use a corded telephone or electric equipment like computers and appliances. Do not use running water.

SESSION FOCUS: ABOUT TORNADOES

- Ask students whether they have heard about tornadoes.
- Explain to students that tornadoes form inside thunderstorms. It is a storm that takes on the shape of a funnel or a tube. It is formed when cold and warm air mix in a storm and begin to spin.
- Show students the videos **What Causes Tornadoes?** https://www.youtube.com/watch?v=ep2YY_D7wdk
Watch The Birth of a Tornado <https://www.youtube.com/watch?v=7KDz6dGQ5RE>
Inside the Tornado <https://www.youtube.com/watch?v=-K-z-mZ9Va4>

ACTIVITY: Tornado in a Bottle

Students will observe the shape of a tornado.

You need:

- water
- a clear plastic bottle with a cap or a glass jar

with a lid

- glitter or food colouring
- dishwashing liquid

To do:

1. Fill a plastic bottle or a glass jar with water until it is about three-quarters full.
2. Add 2-3 drops of dishwashing liquid and some glitter or food colouring.
3. Close the bottle tightly with a cap and spin it anti-clockwise.
4. Turn the bottle upside down and put it on the table to see a mini tornado forming in the water.
5. After showing the tornado, discuss how strong the winds of a tornado are. They can reach speeds of up to 480 km/hr and are strong enough to uproot trees, blow roofs off houses, sweep off cars, etc.

Follow-up Activity:

Show the video at the link to help students understand how a tornado forms:

Watch The Birth of a Tornado <https://www.youtube.com/watch?v=7KDz6dGQ5RE>

Solve the BLM:

Wild Weather – Cause and Effects

Story Read Alouds

Read the book:

The Wind Blew by Pat Hutchins

SCIENCE CONNECTION

SESSION FOCUS: TROPICAL CYCLONES

- STATE: Tropical cyclones are also known as hurricanes and typhoons in other parts of the world. They form over warm ocean waters near the equator. Most tropical cyclones create strong winds and heavy rain. While some tropical cyclones stay out in the sea, others pass over land.
- Ask students to view the picture on page 16 and describe out loud what they see. Point out that the clouds look like a pinwheel.
- EXPLAIN: The winds rotate, or spin, around a centre called an eye. A tropical cyclone's high winds and heavy rains can cause damage to lives and property.

- Show students the video **What are hurricanes, typhoons and tropical cyclones?** https://www.youtube.com/watch?v=SSx_gisp24w

ART CONNECTION

SESSION FOCUS: TROPICAL CYCLONES

Students will understand the shape of a tropical cyclone.



You need:

- cotton wool
- blue, green and brown paint
- a pencil
- glue
- an art sheet

To do:

1. Re-read pages 16–17 with the students and discuss how a tropical cyclone looks like a pinwheel. Share with the students that they will be making a model which shows how a tropical cyclone looks.
2. Give the students an art sheet. Have them paint the centre portion blue to represent the ocean and irregular green and brown shapes to represent land.

3. Tell students to use a pencil to draw spirals that resemble a tropical cyclone over the blue-painted paper.
4. Next, give them glue to spread on the spirals and then stick cotton wool on the glue.

VIDEO HUB

Weather Vocabulary <https://www.youtube.com/watch?v=CXKj7bm4Ops>

Tornadoes <https://www.youtube.com/watch?v=QVZExLO0MWA>

Tornadoes <https://www.youtube.com/watch?v=EdPhSjG3mHc>

Sandstorm <https://www.youtube.com/watch?v=jmeVZFNbR-A>

Monsoon in Kerala <https://www.youtube.com/watch?v=QnHPDp9-eNo>

Monsoon Formation <https://www.youtube.com/watch?v=We4ss7xUIKM>

Note: These are third-party videos and the links may have been removed since we last checked them.

Note: We incorrectly credited the sandstorm photo on page 12 of the magazine. It should read: Anka Agency International / Alamy Stock Photo

Wild Weather – Cause and Effect

‘Cause’ is the reason for an action. An ‘effect’ is the result of the action. List two effects of tornadoes and sandstorms.

cause

Violent thunderstorms cause tornadoes.



effect

cause

Strong winds blowing over desert sand cause sandstorms.



effect

SPLASH INTO WATER

PHYSICAL SCIENCE STANDARDS

Students will know and understand common properties, forms and changes in water. They will understand the importance of water for human beings.

LANGUAGE STANDARDS

Students read for meaning, demonstrating both understanding and personal response to what is read. They use reasoning strategies and background knowledge to solve complex problems related to the text.



BEFORE READING BUILD BACKGROUND

Ask students to share all the things they can think of about water. For example: What does it feel like? What does it look like? What does it taste like? Where do we get it? Who needs water? What do we do with it? Where does water come from?

READY TO READ

- Hand out copies of ENGAGE and have students turn to page 24.
- Read the story using voice modulation and pronunciation.

AFTER READING: EXTENSION ACTIVITIES

STEM CONNECTION

SESSION FOCUS: THE SHAPE OF WATER

You need:

- clear containers, such as bottles, vases, cups or glasses, of different shapes and sizes
- water

To do:

1. Pour water into one of the containers and ask students to observe how the shape of the water changed. Ask them to explain what they observe.

2. Pour water from the container into another container and ask students the following questions:
 - What happened to the water?
 - What does the water look like in the second container?
 - What do you think it would look like if I pour it into another container? What will be the same and what will be different?
3. EXPLAIN: Water does not have its own constant shape. The different containers we used have their own shape and when we poured water into the different containers, the water took on the shape of each container.
4. Students can try out the experiment for themselves.
5. Show students the video: **Matter Chatter – States of Matter** <https://www.youtube.com/watch?v=C33WdI64FiY>
6. Review with students that solids have a definite shape and that liquids and gases take the shape of their containers.

SESSION FOCUS: THE STATES OF WATER

You need:

- clear bowls and containers of different shapes and sizes, such as bottles, vases, cups and glasses
- ice cubes
- a glass beaker
- a lid
- a Bunsen burner

To do:

1. Divide students into groups. Give each group ice cubes in a clear plastic bowl and an empty container of a different shape or size.
2. Ask students the following questions: What is in the bowl? What does it look like? Feel like? What is ice made of? How is ice made?
3. Next ask students to transfer the ice to the empty container. ASK: Has the shape of the ice changed? Why do you think that is? What will happen if we leave the ice out on the table? Why? How do you know? How long might this take?
4. Ask students to return the ice to the clear bowl and let it stay for some time. In the meantime, ask students to draw an ice cube on a sheet of paper and create a word web around the picture to describe ice. For example: cold, solid, melts, etc.
5. When the ice melts ask students: What happened to the ice? Why? What is in the cup? How is it like the ice? How is it different from the ice? Describe the water. What does it look like? Feel like? Pour the water into the container. What does it look like now? Does it look the same or different? Has the shape of the water changed? Why do you think that is? Did the ice change its shape when you put it in this container? Why or why not? Is there any way that we could change this water back to ice? How? How long might this take?
6. Then demonstrate the following experiment to the students. Ensure safety standards are maintained during the demonstration. Pour some water into the beaker until it boils. Cover the beaker with a lid. When the water starts to bubble, remove the lid. Ask students: How do you know the water is boiling? What can you see? Is this water? Where is the steam coming from?
7. EXPLAIN: When water is in its gas form, it is called steam, or vapour. It has no shape because it is a gas. Heat energy turns a liquid into a gas.
8. Stop heating the water and place a lid over the beaker. Show students the clean lid before placing it on the beaker. After a few minutes lift the lid and show the lid to the students. Ask them: How did the water droplets on the lid form? Where is the steam?
9. EXPLAIN: The steam cools to go back to its liquid form.
10. Ask students to share a few examples of where they would have seen water going

back and forth from one form or state to another.

SCIENCE CONNECTION

SESSION FOCUS: THE WATER CYCLE

- Ask students if they have ever seen rain. Where does rain come from? How does it get into the cloud?
 - Explain to students that a cycle is a continuing process that has no beginning or end. The water cycle is the movement of water from the ground to the sky and back to the ground.
 - Draw the water cycle on the board as you explain each step. Relate the steps in the water cycle to changes in the states of water.
 - EXPLAIN: Heat from the sun causes the water to evaporate, which means it changes its state of matter from liquid to gas and becomes water vapour. We can't see water vapour because it mixes with the air right away and is too small for our eyes to see. Water vapour, which is lighter than air, rises into the sky. And as it goes up higher and higher it gets colder and colder. As the water vapour gets colder it changes form again, from a gas back to a liquid, and this is known as condensation. The tiny droplets gather to form clouds. As the droplets get larger, they become heavier causing them to fall to the ground as precipitation such as rain, sleet, hail or snow. When the water falls back to Earth, some of it soaks into the ground and joins lakes and streams or different water bodies.
 - Ask students: Why does it always rain down and not up? (*Earth's gravity pulls the water back to Earth.*)
 - Share with students that water is always on the move. There is the same amount of water in the world now as when the world first formed.
 - Review the water cycle with the students by showing them the video: <https://www.youtube.com/watch?v=ncORPosDrjI>
- ACTIVITY: Water Cycle Poster**
- Students can make a water cycle poster collage.
 - They can use blue cellophane for the water

body, grass and mud for land, cotton for clouds, felt pens to draw rain, brown paper bags for mountains.

ACTIVITY: The Water Cycle in a Bag

You need:

- a clear bag
- sticky tape
- markers
- blue food colouring
- a glass of water



To do:

1. Give each student a bag. Ask them to draw the water cycle on the bags as shown in the image.
2. Add a few drops of blue food colouring to the water and pour the water into the bag.
3. Seal the bag securely and tape it to a window facing the sun.
4. After approximately 30 minutes, you should start to see water droplets forming on the inside of the bag.
5. Tap the droplets to make it rain inside the bag.
6. Ask students to explain the water cycle.

SESSION FOCUS: WATER BODIES

- Show a globe to students. ASK: What does the blue colour on the globe represent?
- SHARE: Water covers nearly three-quarters of Earth's surface. Water is stored in many places, including oceans, rivers, streams, ground water, lakes and ponds. Discuss.
- Read pages 28–29 with the students.
- Show students these videos:
Lonar Crater Lake <https://www.youtube.com/watch?v=cfRsRhohe4s>
Boiling River found deep in the Amazon <https://www.youtube.com/watch?v=qz1HqyE80IE>.

ENVIRONMENTAL MANAGEMENT CONNECTION

SESSION FOCUS: WATER IN MY LIFE

- ASK: What do we need to be alive? (*Food, water, air, etc.*)
- SHARE: Water is very important to all living things. In some organisms, up to 90% of their body weight comes from water. Approximately 60% of the adult human body is water.
- Have the students stand up and jog in place or run around for a short time. After a few minutes of this physical activity, ask them to explain some of the changes they see in their bodies from this exercise. For example: out of breath, hot, sweaty, thirsty.
- Show students these videos:
Water's Role as a Nutrient <http://study.com/academy/lesson/waters-role-as-a-nutrient-importance-dietary-need.html>
What would happen if we didn't drink water <https://www.youtube.com/watch?v=9iMGFqMmUFs>
- Ask students to talk about why water is important for human beings.

CITIZENSHIP CONNECTION

SESSION FOCUS: SAVING WATER

- Ask students to share how water is being used in their homes, such as for washing clothes and utensils, cooking, etc. Then ask how much water they use for these daily activities? For example: brushing teeth, taking a shower, flushing the toilet, drinking water.
- Ask students what it means to waste water or use it excessively. Ask them to check for leaking faucets, for example. Tell them that a single drip won't waste much water, but to think about each tap in their home dripping a little bit all day long. What if every tap in every home in the city, state, country also dripped? The drips would add up to a flood of wasted water.
- ASK: Why is it important to save water?
- SHARE: We know that water is always on the

move. Though there is the same amount of water in the world now as when the world was first formed, the water moving about in the water cycle does not fall exactly where it evaporated from. Some places receive more and some receive less rainfall. Each place has different needs for its water and every place may not receive enough precipitation. That is why it is extremely important to conserve water. Also, we cannot drink ocean water since it is salty. We can only drink fresh water. Though there is lots of water on Earth, much of Earth's fresh water is frozen in glaciers. Global climate change is melting these glaciers. Fresh water from the glaciers melts into the ocean, becoming salt water. Humans cannot drink salt water.

- Discuss ways to conserve water.
- Show the students the video **Simple Steps to Save Water** <https://www.youtube.com/watch?v=U8pIOCEf1hY>

MATHEMATICS CONNECTION

SESSION FOCUS: SAVING WATER

- Ask students to think of all the different uses for water in each room of their home. List them on the board.
- Give each student the BLM 'Water Usage', and ask them to follow their family's water usage for a day to record how water is used.
- Students will keep a tally of each time water is used in the home, including the toilet, the tap, the shower, for washing clothes and dishes, drinking, and washing the car.
- After students complete the BLM discuss the following questions:
 1. How do we use water?
 2. How often do we use water?
 3. How much water do we use for different activities?
 4. Is water being wasted or used excessively?
 5. What are more efficient ways to use water?

ACTIVITY

Have students make posters for display to educate other students, parents and families about conserving water. They will use their

ideas from discussions and observations in their home of how water is wasted and how it can be conserved.

LANGUAGE ARTS CONNECTION

SESSION FOCUS: WATER WORD FLOW

You need:

- a pencil and paper for each student
- Students write words that describe or are related to water. For example: wet, liquid, ice, melt, steam, river, sea, pour, rain, condensation, flow, splash, puddle, drip, stir, squirt, leak.
- Allow students five minutes to write the discriptors.
- Encourage students to share their words and then write a paragraph or several sentences using as many of these words as possible.

STORY READ ALOUDS

Water is Water Read Aloud <https://www.youtube.com/watch?v=4b-ALD65trM>

Water Dance by Thomas Locker <https://www.youtube.com/watch?v=qHPqIQzkrHM>

VIDEO HUB

The Water Bodies <https://www.youtube.com/watch?v=bNWuQD7QHbc>

Rivers <https://www.youtube.com/watch?v=t8FrY4tGgnY>

Let's Go Save Water <https://www.youtube.com/watch?v=ZcCAkWT7df4>

The Basics of Freshwater <https://www.youtube.com/watch?v=oaQCiwjzjCM>

Water – Who Needs it? <https://www.youtube.com/watch?v=l67HwLegDLE>

Note: These are third-party videos and the links may have been removed since we last checked them.

WATER USAGE

Keep a tally of how many times you use water in your home. Mark it on the table whenever water is used for the following activities:

ACTIVITY	TALLY MARKS	TOTAL
Drinking water glasses		
Taking a shower		
Brushing teeth		
Washing hands		
Flushing the toilet		
Washing clothes		
Washing utensils		
Cooking a meal		
Washing the car		
Watering the plants		
Other activities		

Every drop counts when we need to save water!