

Instant STEM Activities

2

Core Ideas and Practices

Includes

- Physical, Life, Earth and Space Sciences
- Engineering, Technology, and Applications of Science
- Informational Text
- Project-based Activities
- STEM Occupations

Matter Is Everywhere

Look around you. How are juice, a horse, and steam alike? They are all made of matter. Matter is anything that takes up space and has mass. Everything can be sorted into one of three states of matter: solid, liquid, or gas.

Matter can be in the solid state.



Matter can be in the liquid state.



Matter can be in the gas state.



Think About It

1. What are the three states of matter?
2. Give an example of a solid.
3. Give an example of a liquid.
4. Give an example of a gas.

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Experiment: Will It Change?

Test liquids and solids. See if they will change state.

Type of Liquid:

Test	Prediction: Will it change?	Observation: Did it change?
What happens when you put it in the freezer?		
What happens when you heat it?		
What happens when you pour it?		
What happens when you stir it?		

Type of Solid:

Test	Prediction: Will it change?	Observation: Did it change?
What happens when you put it in the freezer?		
What happens when you heat it?		
What happens when you pour it?		
What happens when you stir it?		

Designed for teachers with parents in mind.

Use this resource to help students gain practice in the following:

Grade 1 Standards—Reading: Informational Text

Key Ideas and Details

- Ask and answer questions about key details in a text.
- Identify the main topic and retell key details of a text.
- Describe the connection between two individuals, events, ideas, or pieces of information in a text.

Craft and Structure

- Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
- Know and use various text features to locate key facts or information in a text.
- Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

Integration of Knowledge and Ideas

- Use the illustrations and details in a text to describe its key ideas.
- Identify the reasons an author gives to support points in a text.

Next Generation Science Standards—Eight Practices of Science and Engineering

- 1. Asking questions (for science) and defining problems (for engineering)**
- 2. Developing and using models**
- 3. Planning and carrying out investigations**
- 4. Analyzing and interpreting data**
- 5. Using mathematics and computational thinking**
- 6. Constructing explanations (for science) and designing solutions (for engineering)**
- 7. Engaging in argument from evidence**
- 8. Obtaining, evaluating, and communicating information**

Instant STEM Activities Grade 2
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As we live in a rapidly changing society, exposure to and fluency in Science, Technology, Engineering, and Mathematics (STEM) ensures that children will gain the skills they will need to succeed in the 21st century. It is essential that children gain practice in becoming good problem solvers, critical thinkers, innovators, inventors, and risk takers.

Teaching Tips for Parents

Encourage Topic Interest

Help your child develop an understanding and appreciation of different STEM concepts by providing an area to display topic-related non-fiction books, pictures, collections, and artifacts as a springboard for learning.

What I Know... What I Wonder... What I Learned... (KWL Chart)

Introduce each STEM unit by asking what your child thinks he or she knows about the topic, and what your child wonders about the topic. Complete this activity as a brainstorming session. Once your child has had a chance to complete the questions, combine the information to create a chart for display. Throughout the study, periodically update your child's progress in accomplishing the goal of what she or he wanted to know, and validate what he or she wondered about and has learned.

Vocabulary List

Keep track of new and content-related vocabulary on chart paper for your child's reference. Encourage your child to add words to the list. Classify the word list into the categories of nouns, verbs, and adjectives. In addition, have your child create a personal science dictionary as part of his or her learning log.

Learning Logs

Keeping a learning log is an effective way for your child to organize thoughts and ideas about the STEM concepts presented and examined. Your child's learning log also provides insight on what follow-up activities are needed to review and to clarify concepts learned.

Some ideas for a learning log include keeping a special notebook, a binder or folder to hold papers, or a scrapbook. A learning log could include the following types of entries:

- Your child's personal reflections
- Questions that arise
- Connections discovered
- Labeled diagrams and pictures
- Definitions for new vocabulary
- KWL Chart



Mammals Are Animals

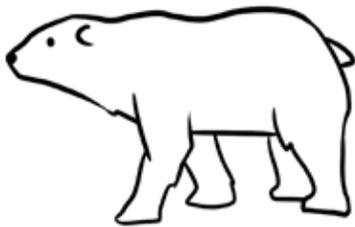
There are different types of animals.
Some animals are **mammals**.



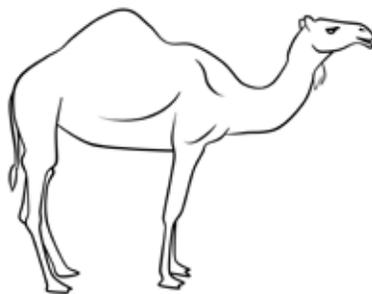
Mammal Facts

- Mammals are warm blooded.
- Mammals have hair or fur.
- Mammal babies are born alive.
- Mammals produce milk to feed their babies.

Most mammals live on land.



Polar bears live in very cold places.



Camels live in very hot places.



Moles live under the ground.

Did you know that bats are the only mammals that can fly?



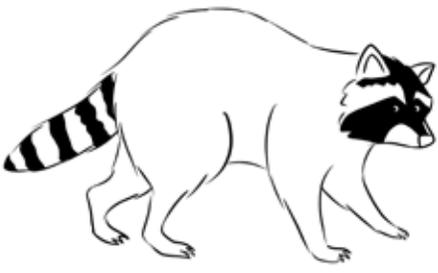
Mammals such as whales live in water.





“Mammals Are Animals”—Think About It!

1. How can you tell a raccoon is a mammal?
List four ways.



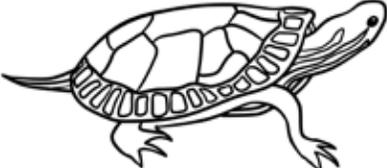
2. Name three mammals.

3. Choose a mammal that you like. Tell three things about it. Read the clues to your friends. Did they guess the mammal?



Other Kinds of Animals

Read the chart to learn about other kinds of animals.

Kind of Animal	Features
Birds owl 	<ul style="list-style-type: none">• Birds have two legs.• They have a beak but no teeth.• Most birds can fly using wings.• Birds hatch from eggs.
Insects grasshopper 	<ul style="list-style-type: none">• Insects have six legs.• Most insects can fly using wings.• Insects hatch from eggs.
Fish salmon 	<ul style="list-style-type: none">• Fish live in water.• They have fins to help them swim.• They have gills to breathe.• Fish hatch from eggs.
Amphibians frog 	<ul style="list-style-type: none">• Amphibians usually live first in water, then later on land.• They hatch from eggs.
Reptiles turtle 	<ul style="list-style-type: none">• Turtles live in water and on land.• Lizards live on land.• Most reptiles hatch from eggs.



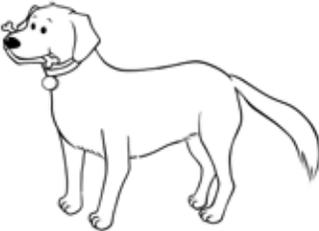
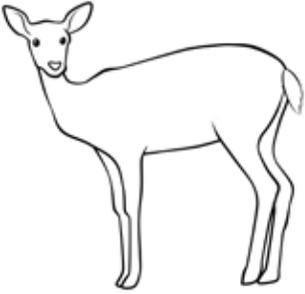
Classify Animals Game

1. Create a word card for each type of animal:

amphibians birds fish insects mammals reptiles

2. Color and cut out the picture cards.

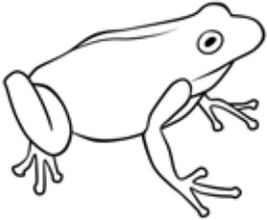
3. Spread out the word cards you created. Sort the picture cards by type of animal.

Beluga whale 	dog 	goldfish 	goose 
ladybug 	lizard 	mosquito 	deer 

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frog



shark



bee



duck



snake



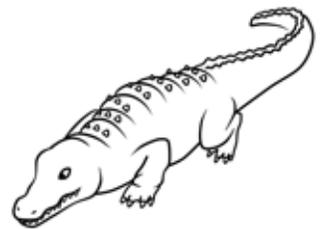
beetle



squirrel



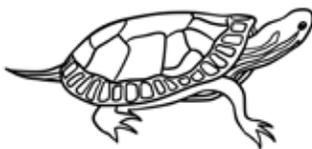
crocodile



bluebird



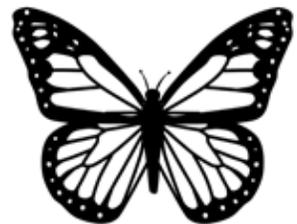
turtle



ant



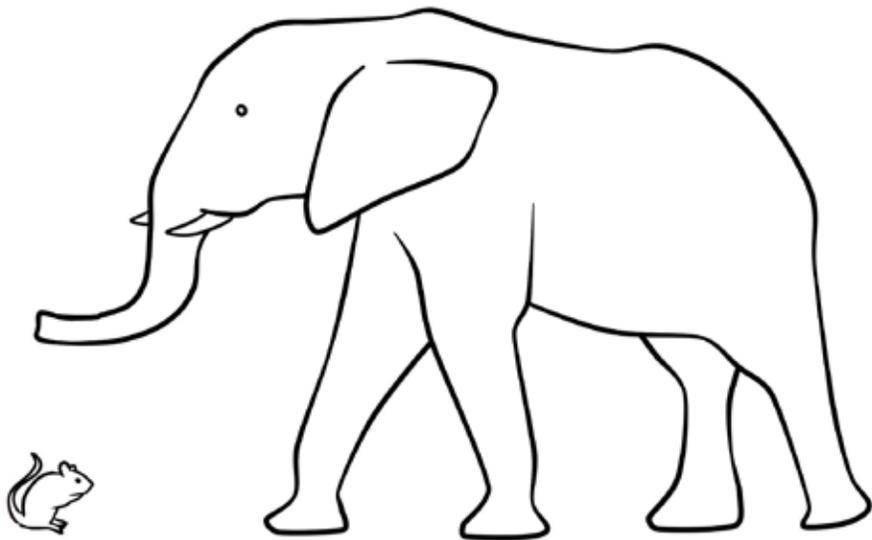
butterfly





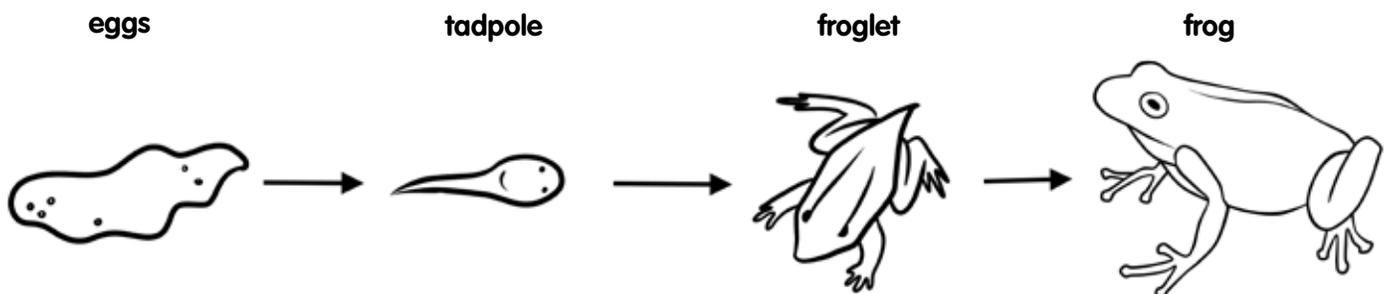
Animals Grow Up

Animals go through stages to grow up. The stages make a life cycle. Most animals have a simple life cycle. They are born alive from their mother or hatch from eggs. Then they grow to adult size.



The life cycle of an elephant and a mouse are similar. Both are born alive from their mother. They drink milk from their mother. They look like their parents, but are smaller. Both will grow up and look even more like their parents. The human life cycle is similar to that of elephants and mice.

Amphibians have more stages in their life cycle. They go through big changes. Look at the pictures that show how frogs grow and change.



A tadpole hatches from an egg. The tadpole has gills like a fish to breathe in the water. It grows slowly into a froglet, then into a frog. The frog lives on land and breathes air the same way you do.

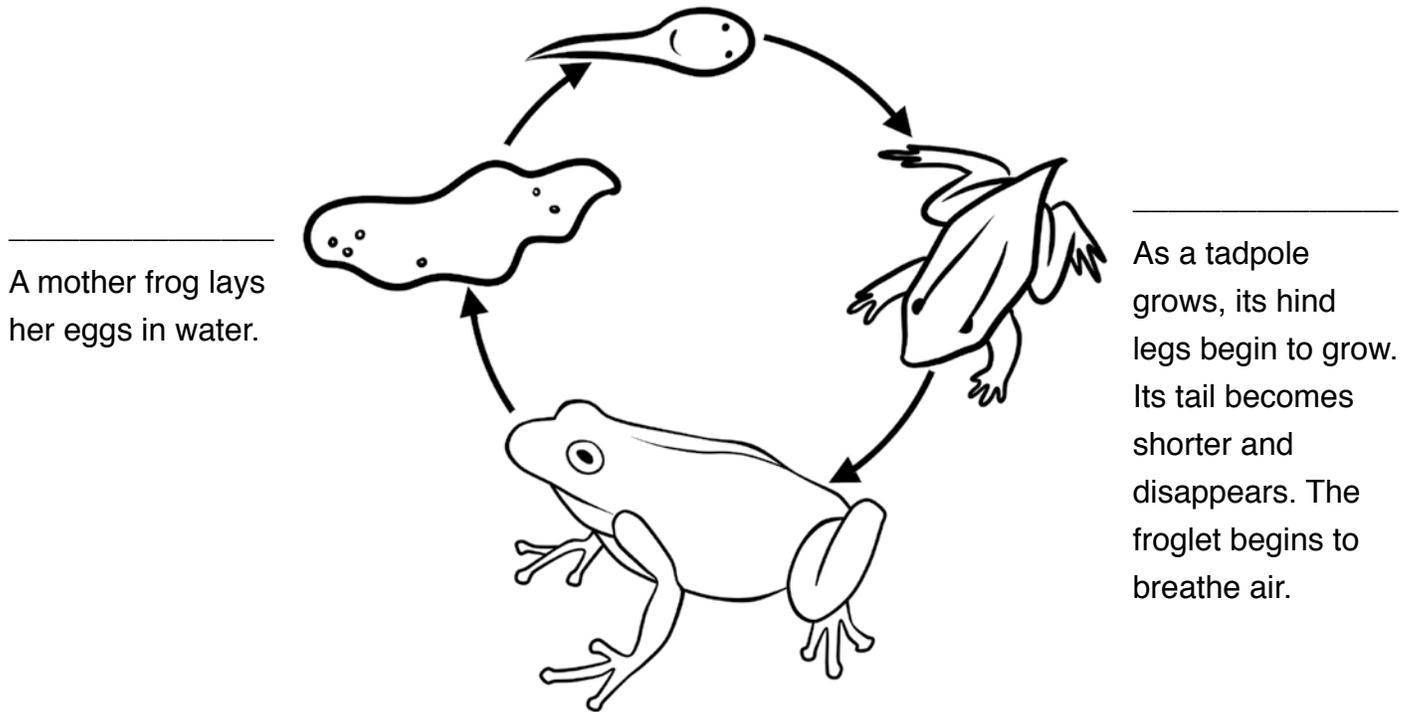


"Animals Grow Up"—Think About It!

1. The diagram shows the life cycle of the frog. Use the words below to label the diagram.

eggs **frog** **froglet** **tadpole**

A tadpole hatches out of each egg. The tadpole has a long tail but no legs. It has gills to breathe in the water.



The frog leaves the water. It can now live on land. After three years, the cycle starts again.

2. How many stages are there in the life cycle of a frog?

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"Animals Grow Up"—Think About It! (continued)

Some baby animals look just like their parents. Some animals change just a little as they grow up. Other animals change a lot as they grow.

Draw a line to match the baby to the adult.

3.



A.



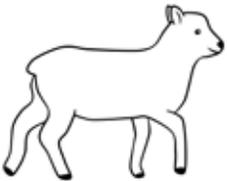
4.



B.



5.



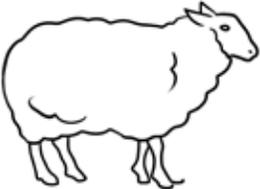
C.



6.



D.



7.



E.



Brain Stretch

On a sheet of paper, draw the life cycle of a chicken. There are three stages. The stages are egg, chick, and chicken. Label your sketch. Write what you know about each stage.

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