

WISE Activity Booklets

A STEM activity booklet for fun on-the-go learning!
Made by WISE Kid-Netic Energy

DIY Activities,
Puzzles,
Colouring
... and more!



University
of Manitoba

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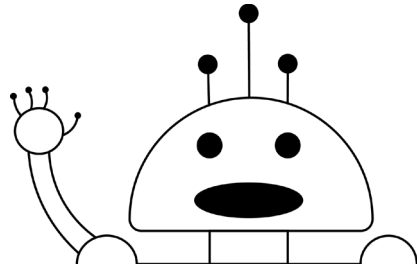
With funding from

Canada

Grade 2

JULY 2020

Growth and Changes in Animals
Properties of Solids, Liquids and Gases
Position and Motion
Air and Water in the Environment



Hello there!

WISE Kid-Netic Energy is a not for profit STEM (Science, Technology, Engineering, and Math) outreach organization at the University of Manitoba. Our organization offers science and engineering workshops, clubs, camps and events to youth from Kindergarten to Grade 12 throughout the province of Manitoba. We reach on average 25 000 to 50 000 youth depending on funding levels. Our approach is simple – present STEM in messy, memorable and engaging ways so Manitoba youth feel motivated to learn more and more. We reach all Manitoba youth, and we particularly target underrepresented youth like girls, indigenous youth and youth facing socio-economic challenges.

All of us at WISE Kid-Netic Energy have been working hard to create these booklets to continue to bring our fun and educational STEM activities to Manitoba youth during these unprecedented times. We are disappointed that we cannot see you in person, and hope that these monthly booklets bring some STEM excitement to your life.

These booklets have been created by our student instructors who are all studying engineering, science, or in another STEM-related field at university. Peek the last page of this booklet to see who created the activities, experiments and recipes within.

All the activities in this booklet are based on the Manitoba Science curriculum. For any teachers viewing this booklet, all the SLO codes are listed at the bottom of each page.

If a link is listed at the bottom of the page, and you have access to the Internet, follow it to check out a video of the activity our instructors have created just for you.

We hope that you enjoy doing the experiments and activities as much as we loved creating them for you.

In this Grade 2 booklet, the science topics you will be exploring are the growth and changes in animals, properties of different phases, position & motion and air & water in the environment!

**Best of luck, and until we see you again,
the WISE Kid-Netic Energy Crew**

P.S. If you have any suggestions for activities or experiments you would like us to try, contact us through our website, or social media accounts that are listed on the last page of this booklet.

Meet our Amazing Authors!

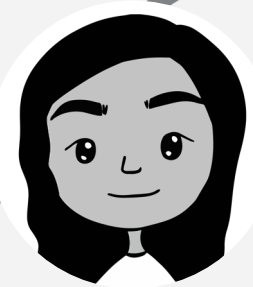


Huda

Huda is in her first year taking general science courses and she is trying to decide between a degree in Microbiology or Genetics. She enjoys baking and cooking and her favourite activity is watching YouTube videos.

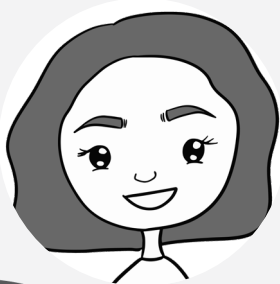
Kajal

Kajal is just finished her first year of Computer Science and is pursuing a Bachelors of Computer Science. She loves to read, sketch, and make things.



Robyn

Robyn is going into her fourth year of Civil Engineering at the University of Manitoba. She enjoys riding her bike, soaking up sunshine and watching live music.



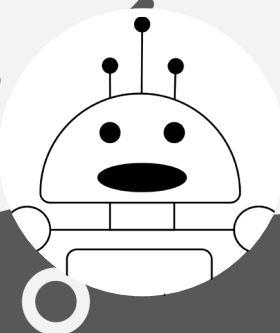
Shannon

Shannon is finishing up her first year of Engineering. In her spare time she enjoys drawing, exercising, being outdoors and trying new things. She is super pumped to be a part of WISE this summer.



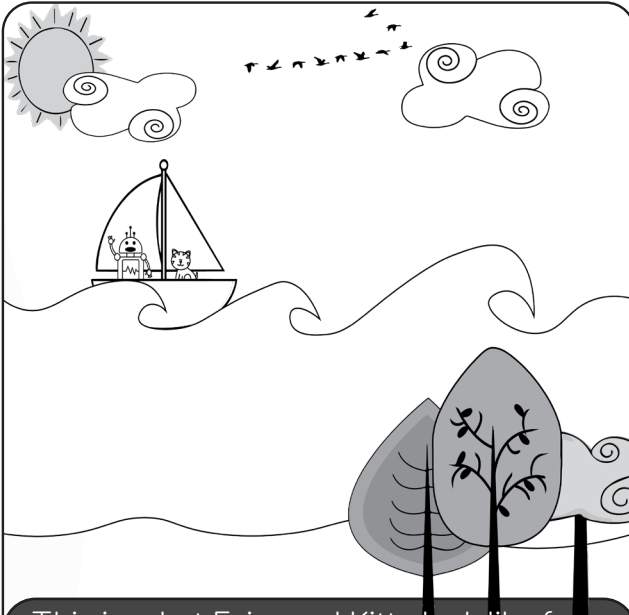
Esiw the Robot

Esiw is a friendly robot that loves to help kids learn about computers & coding! Esiw loves to do math, solve problems and make people laugh!

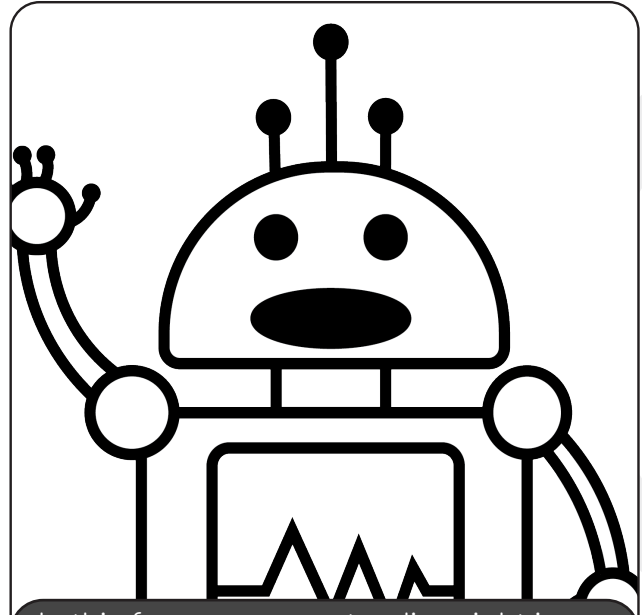


A Picture of Esiw and Kitty

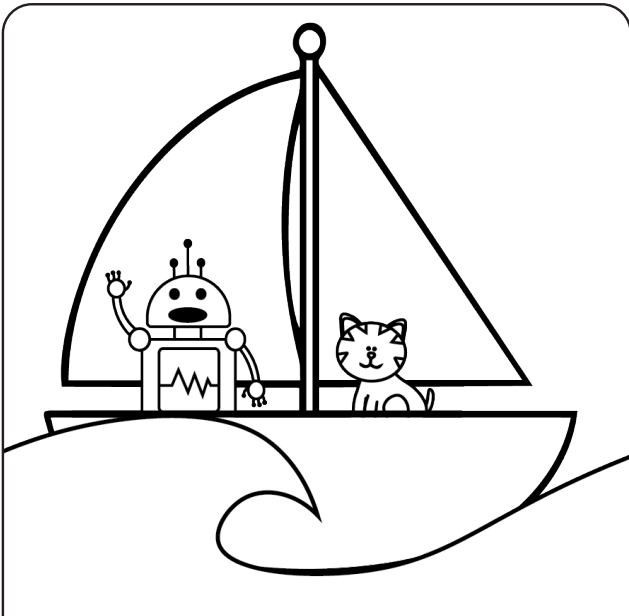
Esiw and Kitty need your help! They want you to paint a picture of them and their boat. Can you colour in the picture that you think has the best position? Esiw and Kitty will stay in one spot and you can move around them.



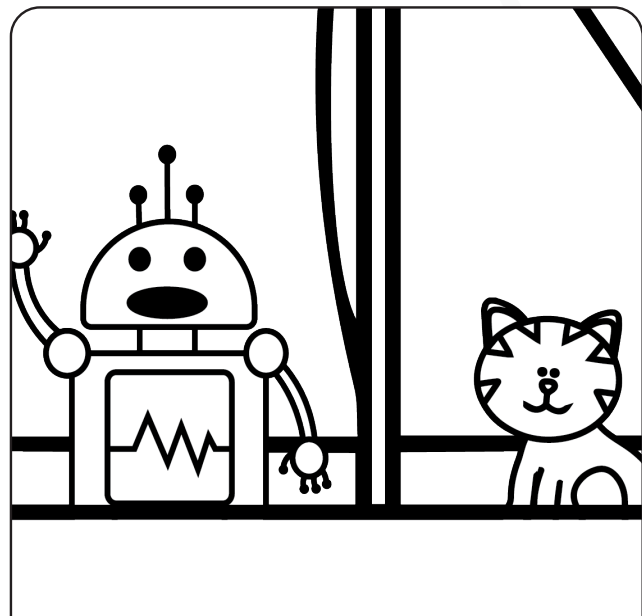
This is what Esiw and Kitty look like from a nearby island. This frame shows the landscape, Esiw, Kitty and the boat



In this frame you are standing right in front of Esiw. Esiw is the only thing you can see if this frame.



When you move further away you can see Esiw, Kitty and the whole boat.



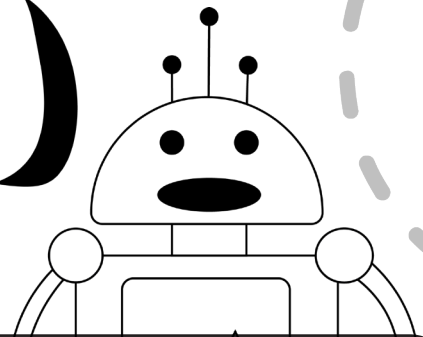
And if you move closer you can only see Esiw and Kitty and not the whole boat.

Animal Movements

Every animal has its own unique way of moving around. Some examples of animals that have very unique ways of moving that we often see here in Manitoba are black bears, garter snakes and mice.

Follow the instructions to make your own version of all 3 of the masks shown below. Then follow the instructions on “How to Move Like an Animal” while wearing your masks.

Those instructions on how to make masks reminds me of the codes that control everything I do! They have to be very exact so I know exactly what to do.



How to Build Your Masks

Materials: scissors, string, decorating supplies, markers or pencil crayons and tape.

STEP 1

Cut out the masks on page 7, make sure to ask an adult if you need help cutting. Make sure you cut out the eye holes. Use other scraps and decorating supplies to make the ears for the bear and mouse, and any other decorating you want to add.

STEP 2

Poke holes through the small holes on the both sides of the mask on the small circles drawn on it.

STEP 3

Tie the string through the holes and get someone to help you tie it securely around your head.

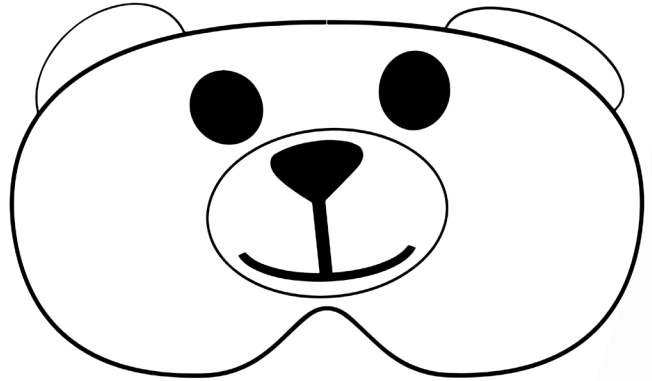
STEP 4

Once you are wearing your mask, start moving around your space like that animal. Their movement is described below.

How to Move Like an Animal

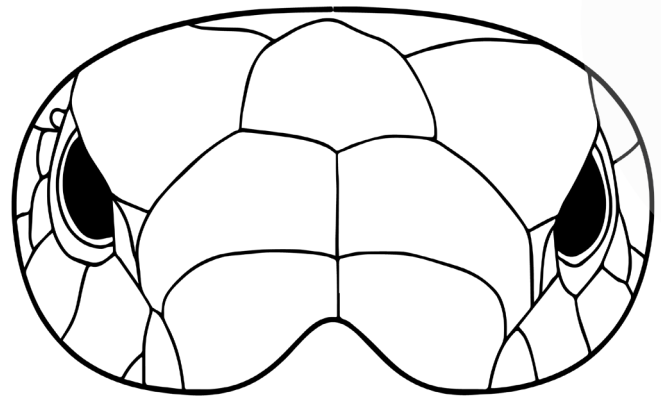
Move like a black bear:

- Take BIG steps
- Move on your hands and knees



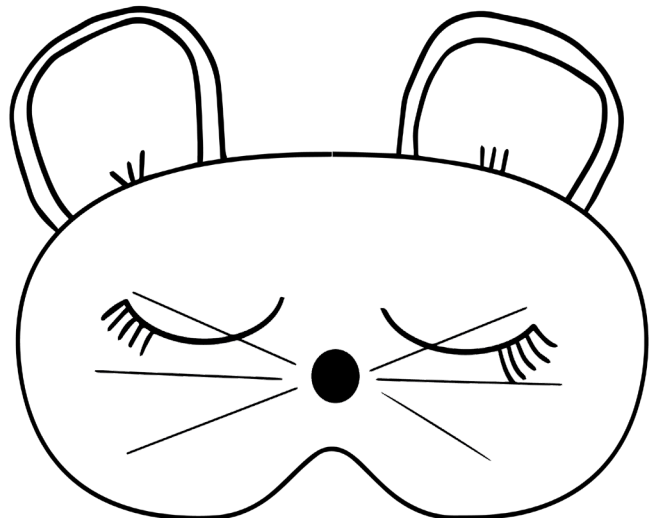
Move like a garter snake:

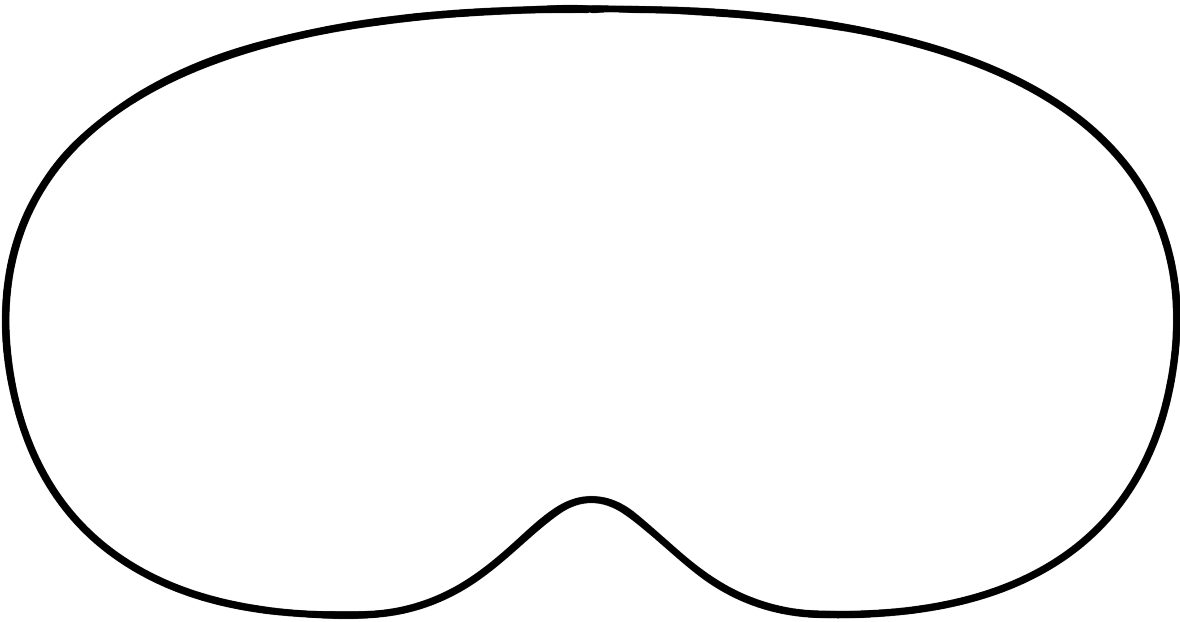
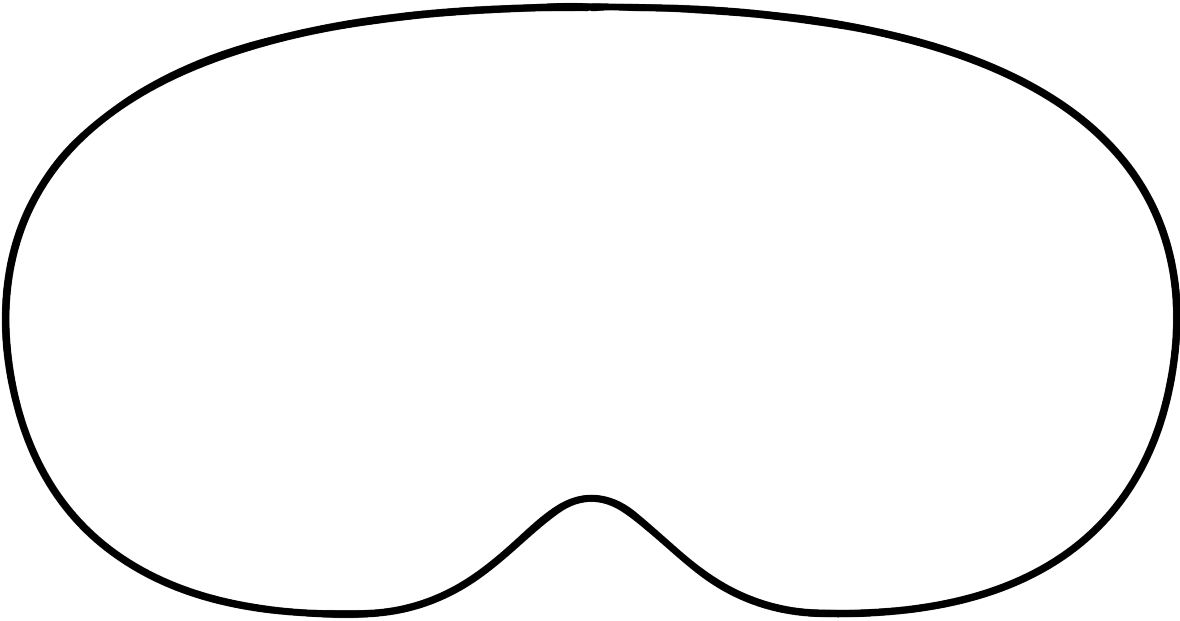
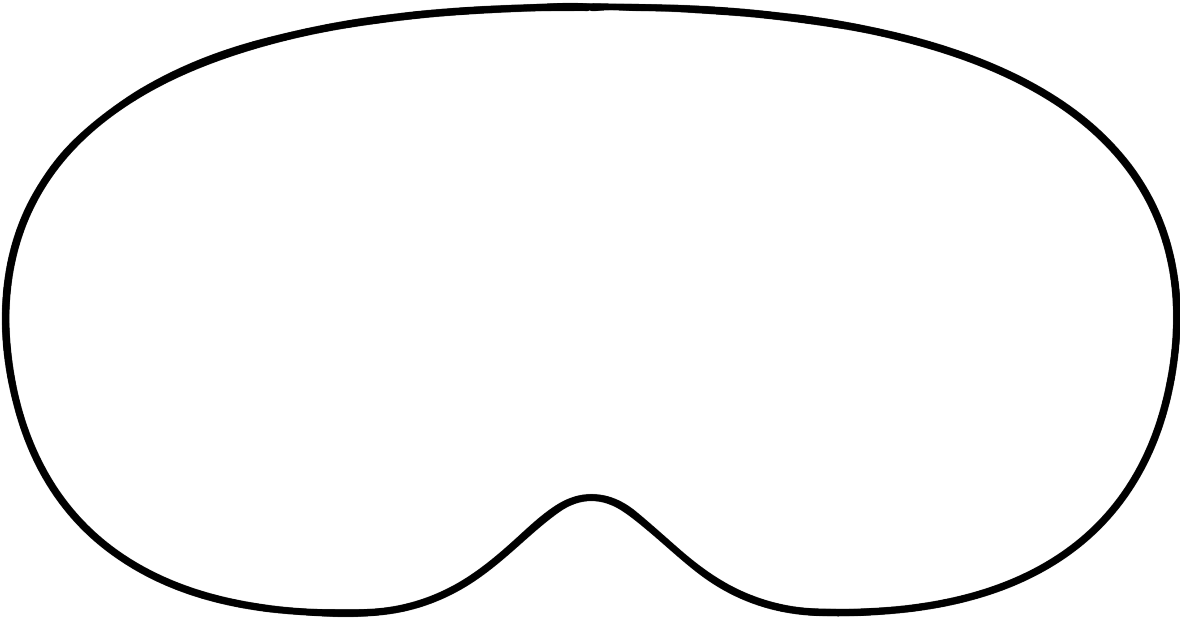
- Make "S" movements on the ground
- Slide on your stomach



Move like a mouse:

- Take fast small steps
- Moving on your hands and knees



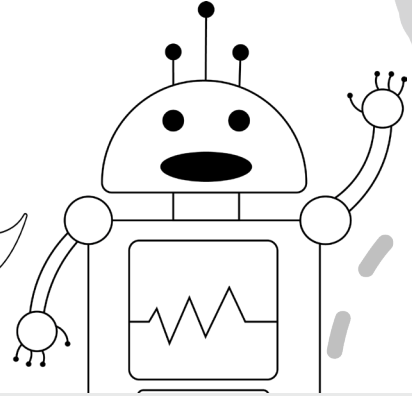


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Things That Do Change and Things That Do Not

As we grow older we start to look different because some of our traits change, but some of our traits stay the same. A trait is something about a person that describes them, like their hair colour or their height.

Computers, like me, often sort things like this into two different groups: constants and variables. Constants are the things that stay the same no matter what, and variables are things that can change.



Can you sort the traits below into either variable (things that change naturally as we grow older) and constants (things that do not change naturally as we grow older).

Traits That Are Variable	Traits That Are Constant



Hair Length



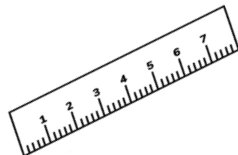
Number of Fingers



Shoe Size



Eye Colour



Height



Hair Colour

Choose Your Own Adventure

Water is an essential resource and is required for human survival. However, 2.1 billion people around the world do not have access to clean water sources within their homes.

Choose your own adventure in the story below to learn more about water sources. Each statement will have either an 'OR' option, where you can choose which one you want to follow and go to the corresponding statement written below that option, or there will be an 'AND' option where there is only one choice and you must go to the statement written below.

Statement #

1 A rural community is out of clean water and is looking to build a well OR a pipe.

Go to statement (2) (3)

2 There is no money to build a pipe, so the community has to boil their water OR walk 6km for clean water.

Go to statement (4) (6)

3 The community gets their well! They decide to use the water for drinking/cleaning OR farming.

Go to statement (5) (7)

4 Boiling water removes biological toxins, but chemical pollutants like lead AND mercury remain.

Go to statement (8)

5 Having clean water, there are fewer medical issues including diarrhea AND nausea.

Go to statement (9)

6 Walking 6km can leave less time for household chores and lead to neck AND back pain.

Go to statement (8)

This activity continues on the next page!

SLO : 2-4-09, 2-4-10, 2-4-11, 2-4-12, 2-4-13, 2-4-14

Statement #

7 The community is able to farm fresh produce, limiting the spread of bacteria AND disease.

Go to statement (9)

8 The health of the community is declining AND the community is having a hard time surviving.

Go to statement (10)

9 With clean water, the community is able to focus on caring for children OR earning money.

Go to statement (11) (13)

10 You decide to use less water by taking short showers AND brushing your teeth with the tap off.

Go to statement (12)

11 More time with parents helps children learn skills to help their family around the house.

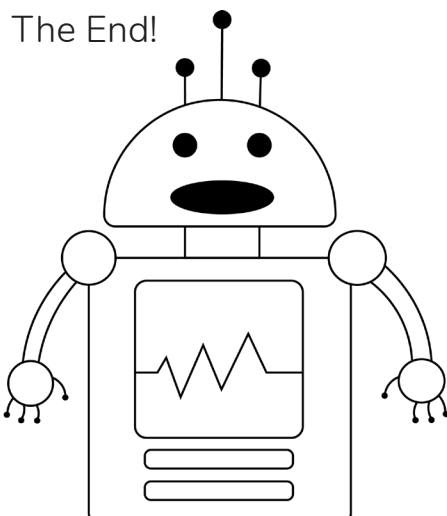
Go to statement (14)

12 Congrats! Because you reduced your water usage the community water has been restored! They now have clean drinking water and can plant fresh produce! The End!

13 With more money, the children are now able to go to school and get an education!

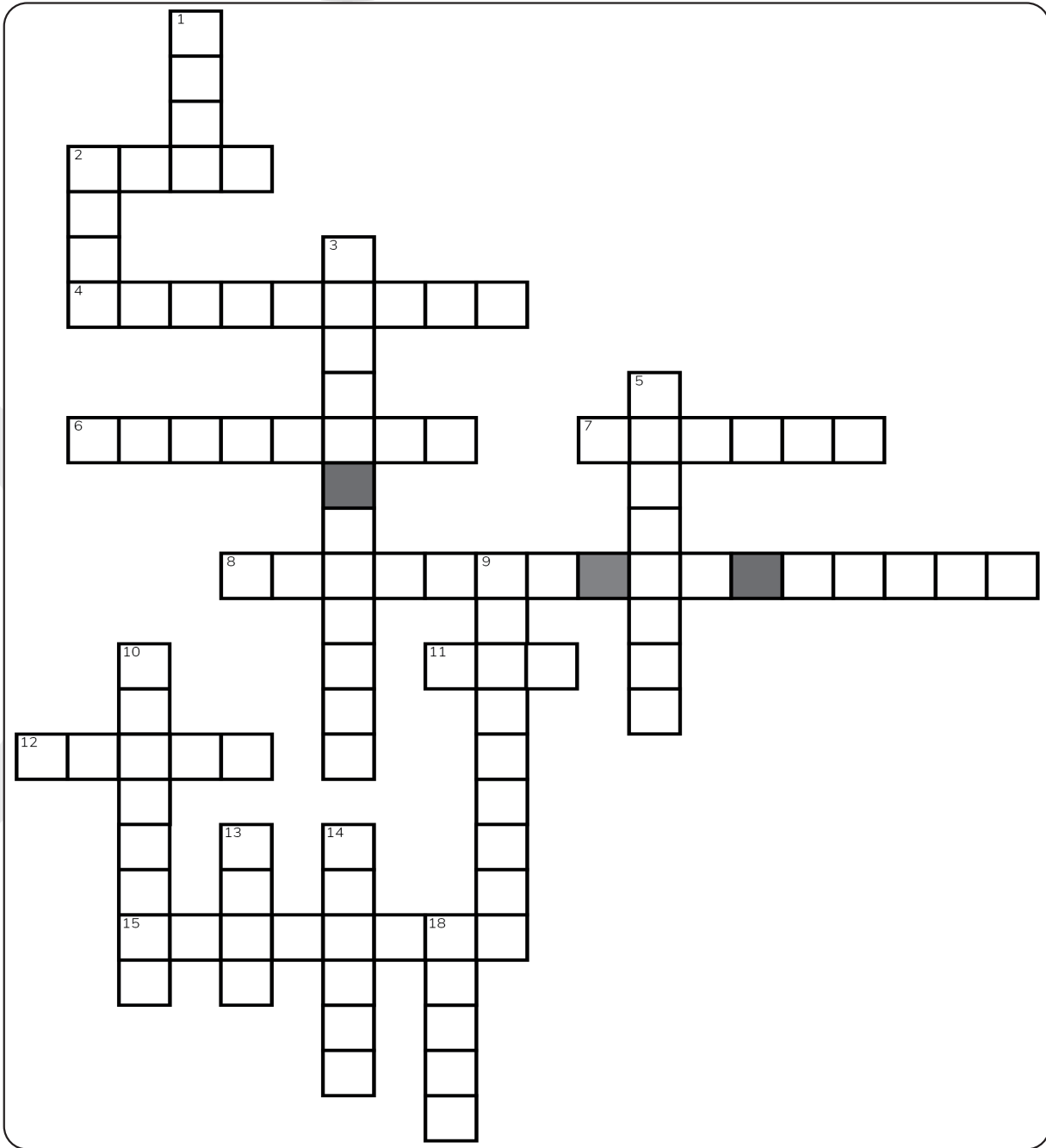
Go to statement (14)

14 With access to clean water, everyone was able to satisfy their basic needs and experience community growth!



That was a fun story! It reminds me a bit of coding and how “AND” or “OR” statements are commonly used in coding.

Solid, Liquid and Gas Crossword



Across:

- 2. A solid turning into a liquid.
- 4. A kind of matter with uniform properties.
- 6. A trait or characteristic you can use to describe matter.
- 7. A substance that flows freely, but has a constant volume.
- 8. The process where matter changes from one state to another.
- 11. A substance that can expand freely, having no fixed shape or volume.
- 12. A object resting or moving on the surface of a liquid without sinking.
- 15. A gas turning into a liquid.

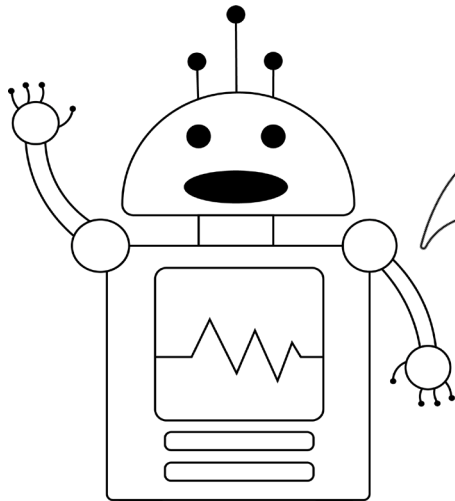
Down:

- 1. Reaching a temperature a liquid needs to turn into a gas.
- 2. The amount of matter something contains.
- 3. The gaseous state of liquid water.
- 5. A solid being completely mixed into a liquid.
- 9. A liquid turning into a gas.
- 10. The ability or tendency to float in water or air.
- 13. An object being submerged below the surface of a liquid.
- 14. A liquid turning into a solid.
- 16. A substance that is not liquid or gaseous.

Which Cycle is Which?

All animals go through what is called a life cycle, from when they are born to when they have babies and those babies start the cycle again.

Cut out the animals on page 15 and glue them in order on the life cycles on this page and page 14. There is the life cycle of a frog, a moth and a duck.



Sorting and putting things in order is one of my favourite things to do! It's a very important part of coding and computer science.

Glue Here

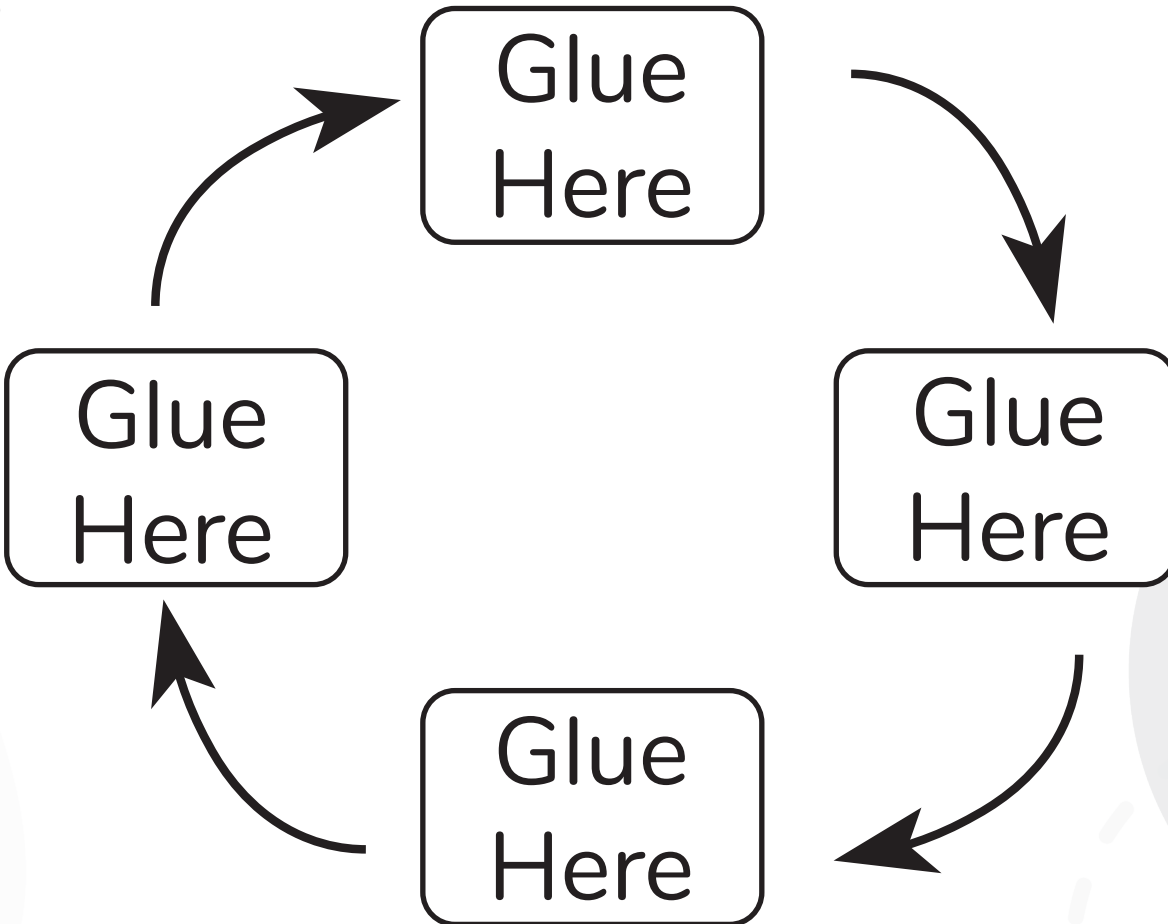
Cycle #1

Glue Here

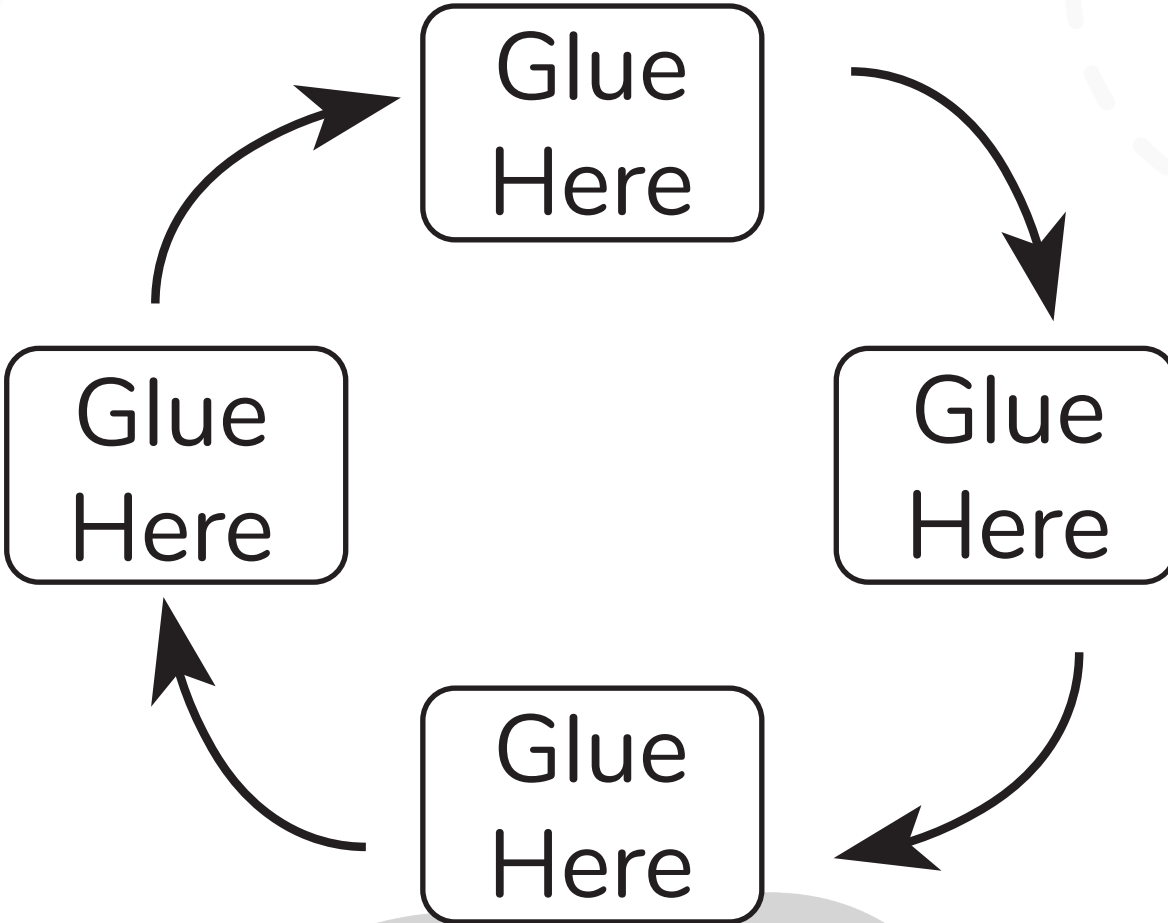
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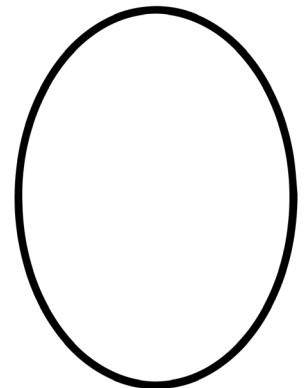
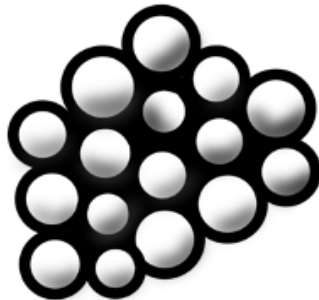
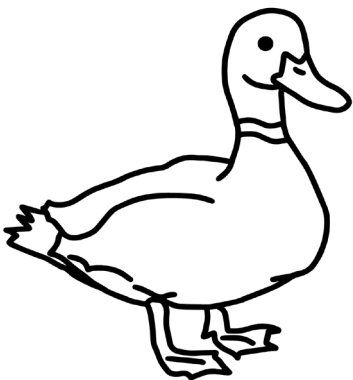
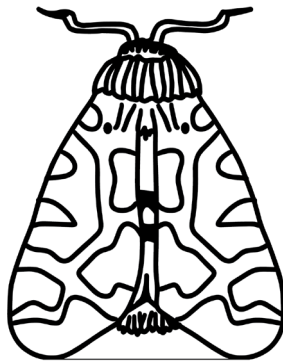
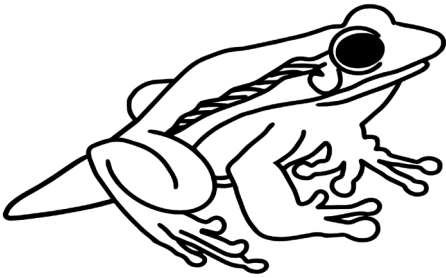
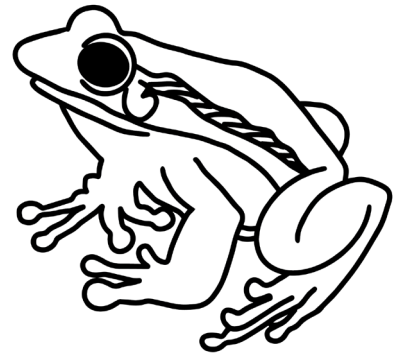
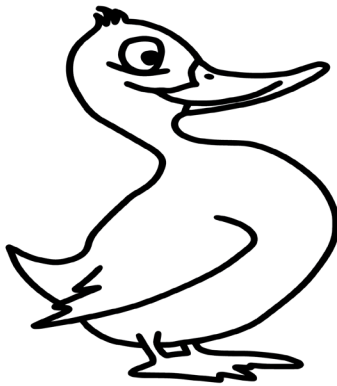
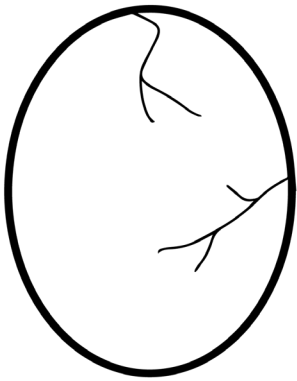
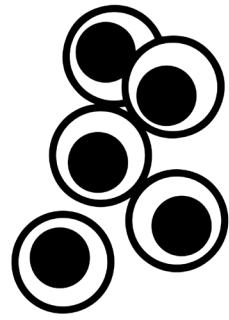
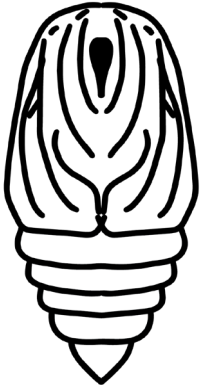
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Cycle #2



Cycle #3

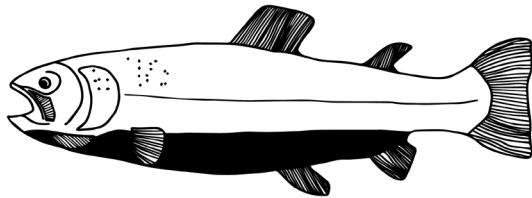




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Matching Habitats

Different animals need different habitats to survive. Draw a line from the animal and its description on the left to the drawing of its habitat on the right.



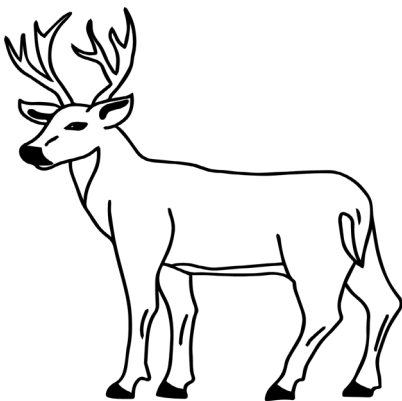
Fish

- Lives in aquatic environment like rivers, streams, lakes and oceans.



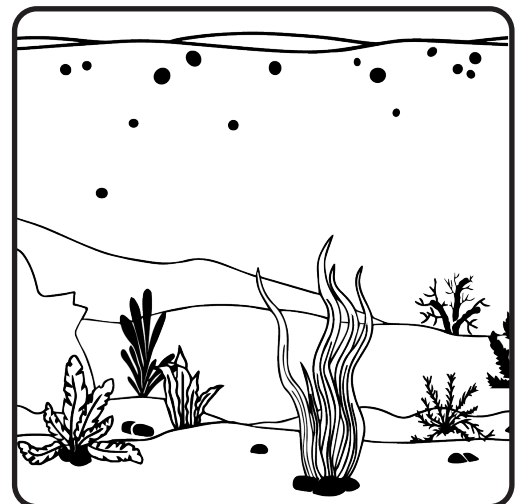
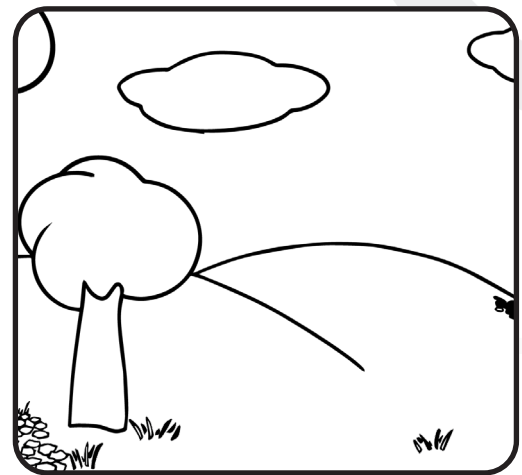
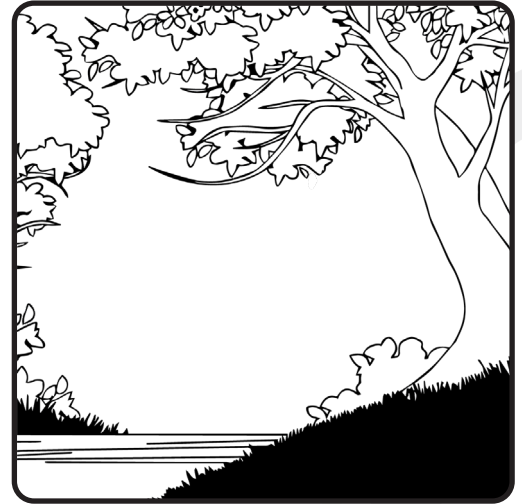
Bald Eagle

- Lives in wetlands on the tree tops.



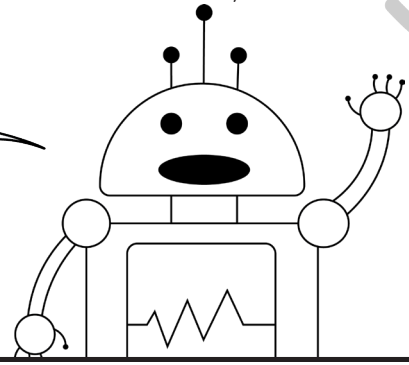
White Tailed Deer

- Lives in the prairies in the lightly forested areas.



Build A Wagon

Instructions are fun! I'm controlled by coding, which is basically just a long list of instructions for me to follow! Follow these instructions to build your own wagon!



Materials: Cardboard or four plastic bottle caps, empty juice or snack boxes, empty toilet paper or paper towel rolls, skewers or toothpicks, scissors and glue.

STEP 1

Take your box and cut 4 small holes where you want the wheels to go, ask an adult if you need help.

STEP 2

Use either the skewers, toothpicks or any other stick-like thing you can find as an axle. Stick the axles through the wholes you made in step 1.

STEP 3

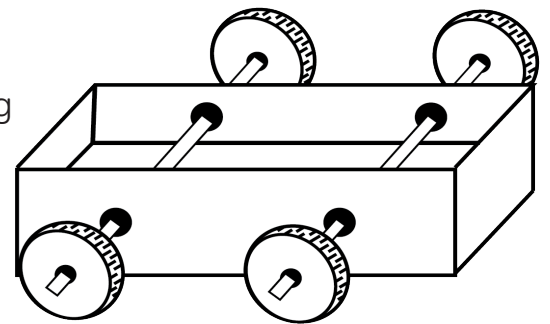
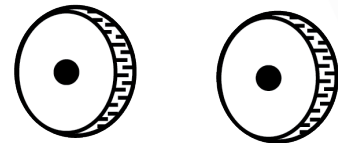
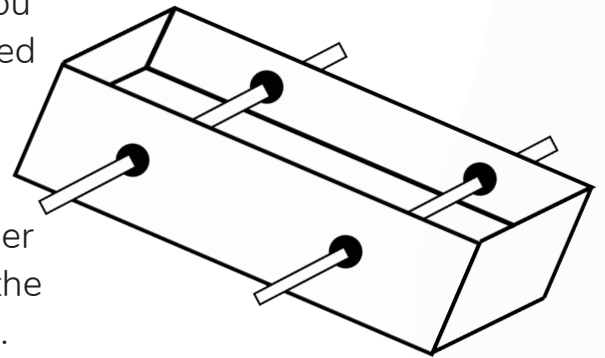
Your wheels can be made of bottle caps, circles cut from cardboard or any other small round things. Cut a small hole in the middle of your four wheels.

STEP 4

Attach the wheels to the end of each axle by putting the axle into the wheel's hole and gluing it in place.

STEP 5

Once the glue dries, test your wagon and see if it can roll. Is there any changes you want to make to your wagon?



Fun Fact:

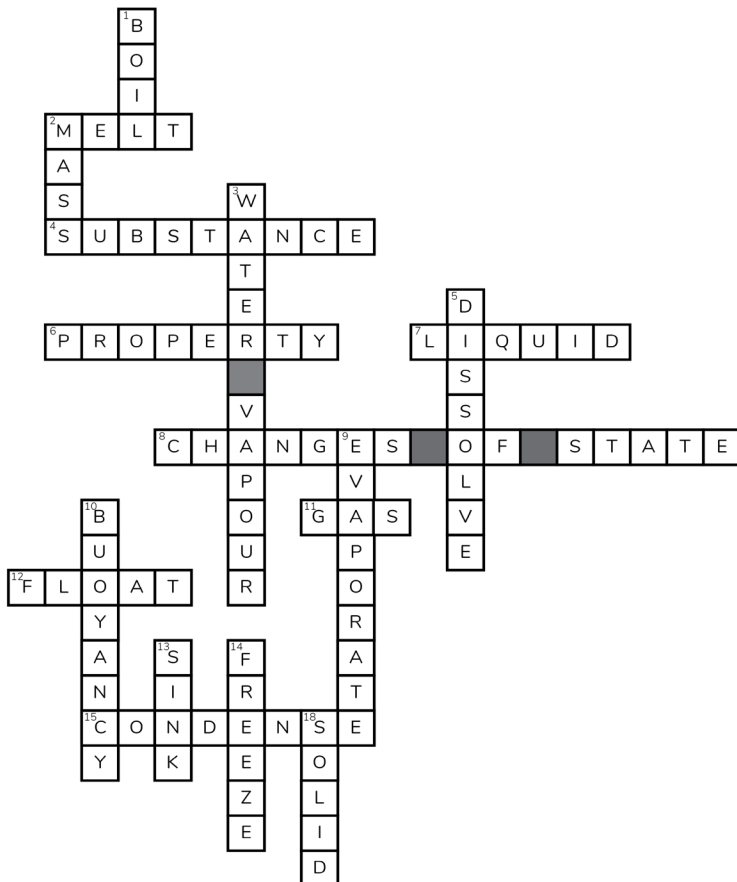
The wheels spin in different directions depending on which way the wagon is moving. Test it out yourself! Watch the way your wheels spin as you push and pull on the wagon!

Answer Keys

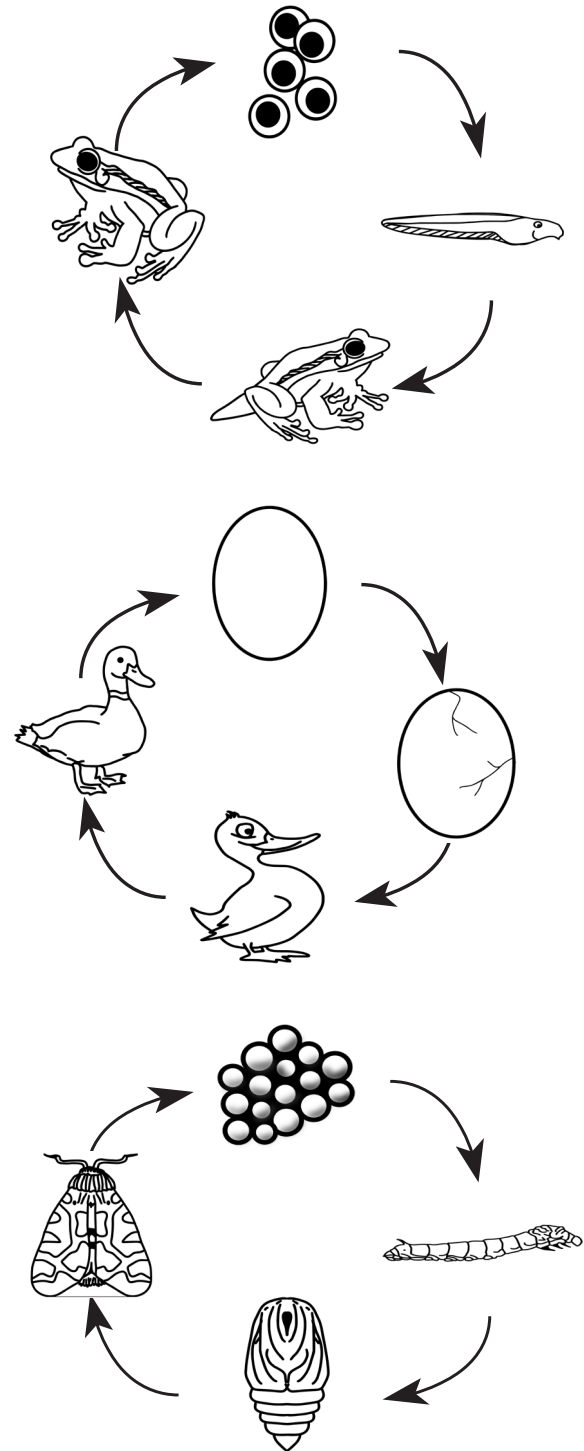
Things That Change and Things That Do Not (page 9)

Traits That Are Variable	Traits That Are Constant
<ul style="list-style-type: none"> Hair Length Height Shoe Size Hair Colour 	<ul style="list-style-type: none"> Eye Colour Number of Fingers

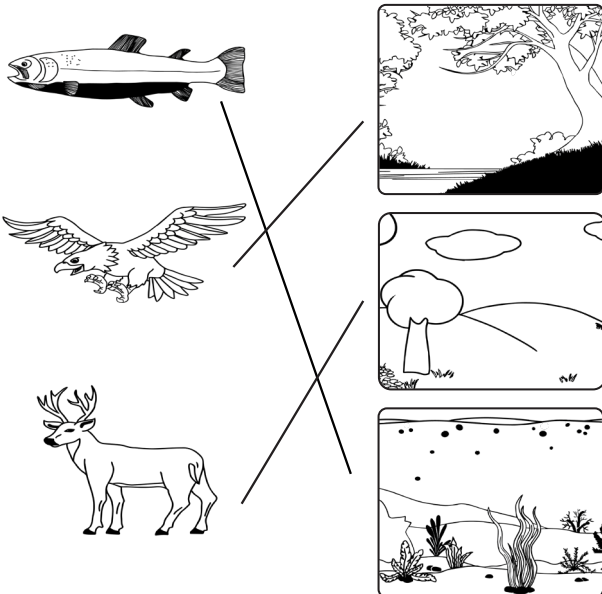
Solid, Liquid and Gas Crossword (page 12)



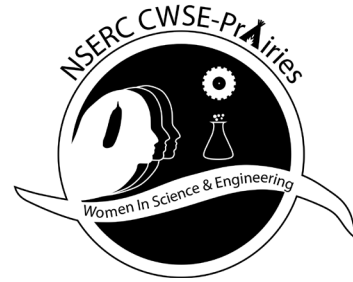
Which Cycle is Which (page 13)



Matching Habitats (page 17)



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