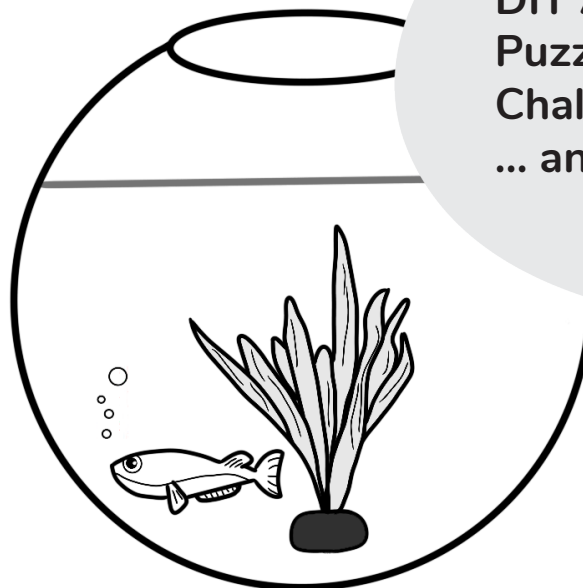


WISE Activity Booklets

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



DIY Activities
Puzzles
Challenges
... and more!



University
of Manitoba

WISE Kid-Netic Energy is a proud member of Actua

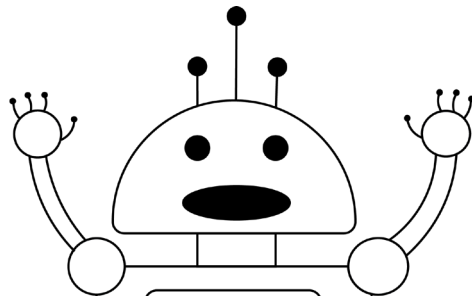
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Youth · STEM · Innovation

With funding from
Canada

Grade K-1 VOLUME 6

Trees - Colours - Paper
Living Things - The Senses - Materials Science
Daily and Seasonal Changes



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 next 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.

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

In this Grade K-1 booklet, the science topics you will be exploring are: trees, paper, living things, colours, our five senses, and more

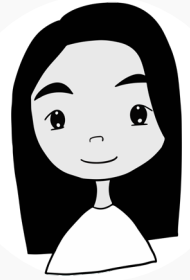
**Best of luck, and until we see you again,
the WISE Kid-Netic Energy Crew**

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!

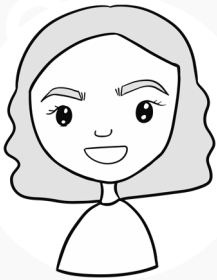
Amaris

Amaris is in her second year in sciences at the University of Winnipeg and plans on majoring in biology. In her free time, Amaris likes reading, playing piano and baking.



Brenna

Brenna is in her third year of mechanical engineering and loves learning about the science behind how things in our world work! In her free time she likes baking, seeing friends, and playing with her dog



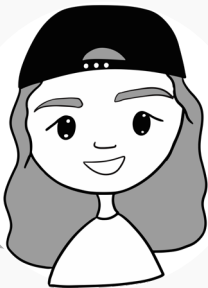
Huda

Huda is in her second year taking general science courses and she's trying to decide between a degree in Microbiology or Genetics. She enjoys baking and cooking and her favorite activity is watching videos on YouTube!



Toni

Toni is a graduate of the Faculty of Social Work at the University of Manitoba. She loves learning new things! In her spare time you can find her reading, painting or spending time with dogs.



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!

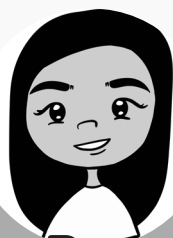


... and our Incredible Editors!

Alex



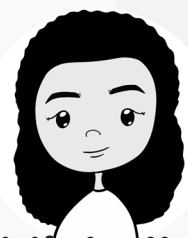
Bea



Mahalia



Michelle



Colour by Number

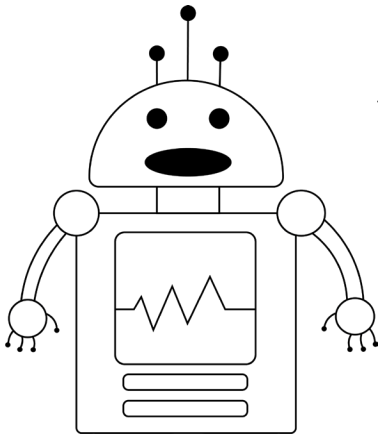
Which beautiful animal is hiding in the rainforest? Colour the image using the key below to help you figure out which colour goes where.

Hint: If the section has more than one number, mix those colours together to reveal a new colour! Colouring lightly with pencil crayons works best.

- 0 = White
- 1 = Red
- 2 = Yellow
- 3 = Blue

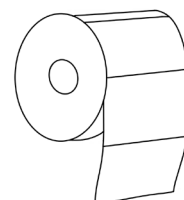
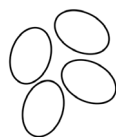
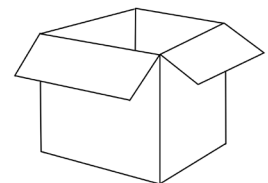
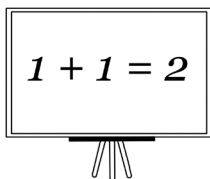
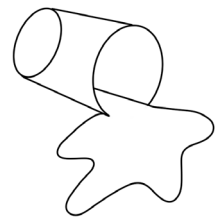
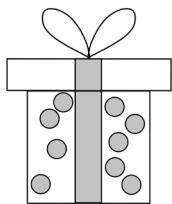
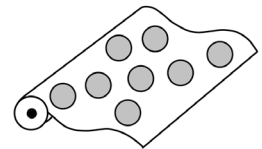
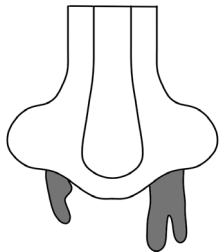
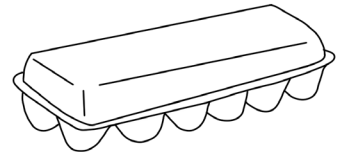
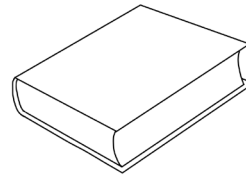
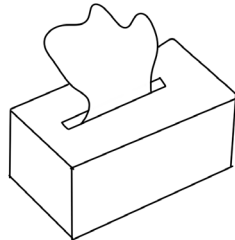
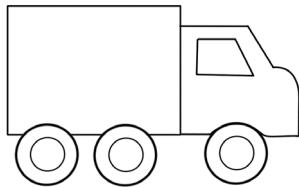


Which is the Best Paper?



Robots like me are good at sorting things. What about you?

Look at each picture below and connect which kind of paper is the most useful for each task!



Which Trees Lose Their Leaves?

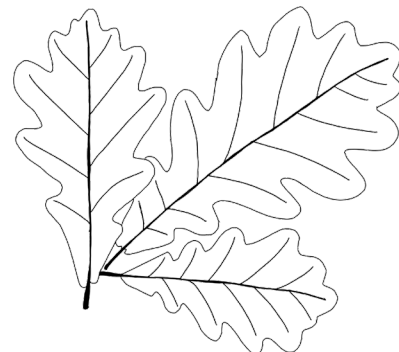
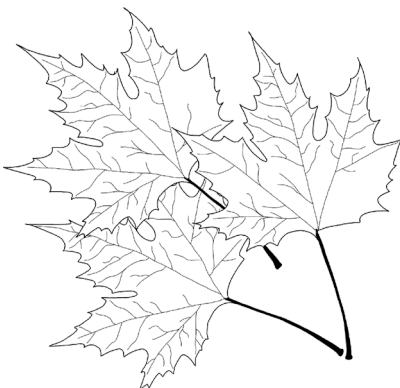
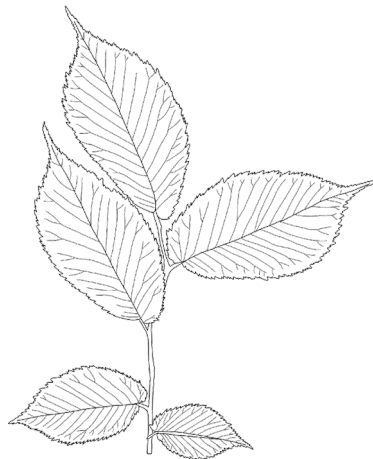
There are hundreds of different trees in the world! But did you know some of them DON'T lose their leaves when it gets cold?

Some trees have leaves, and other trees have little needles. Usually trees with lots of leaves will lose them in cold weather and trees with needles won't.

Can you circle which of the two trees **WILL** lose its leaves?



Look at the drawings below. **Colour in** the leaves and **circle** the needles.



Envelope Design Process

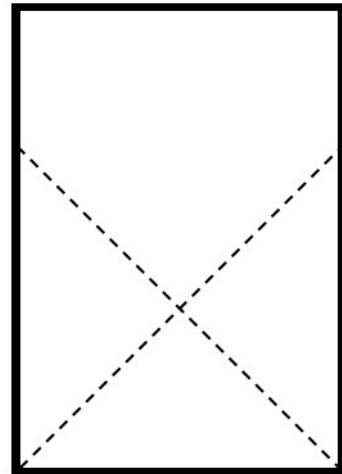
With the help of an adult or older sibling, follow the directions below to make an envelope.

Materials

- 1 piece of paper
- Scissors
- Tape or glue

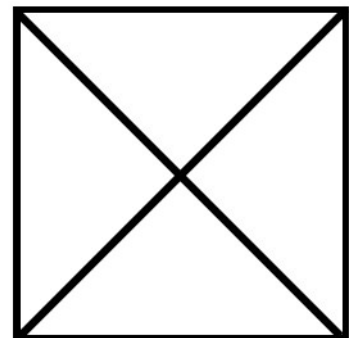
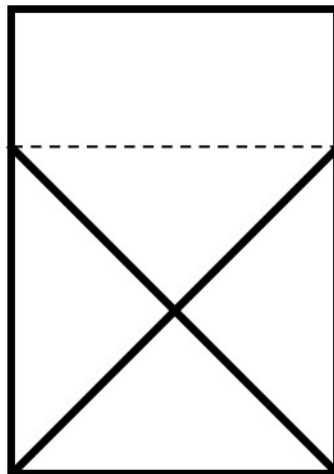
Step 1

Make two diagonal folds so that the top edge of the paper lines up with the sides.



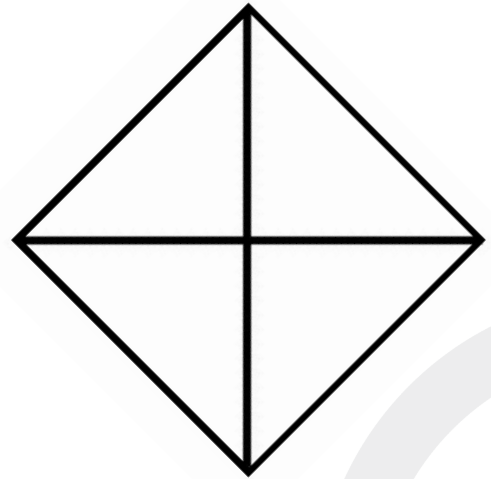
Step 2

Make a fold at the ends of the two creases and cut the top section off. You should end up with a square piece of paper.



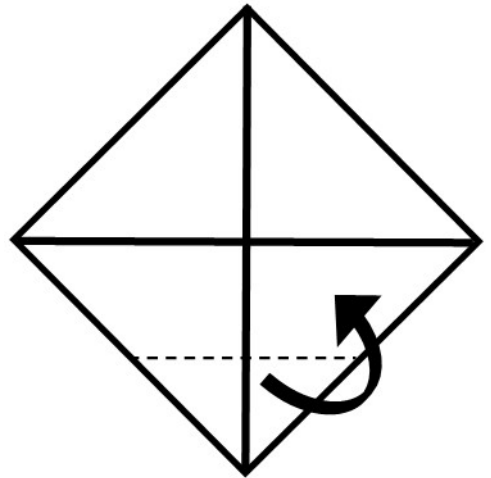
Step 3

Rotate the paper so one corner is pointing towards you.



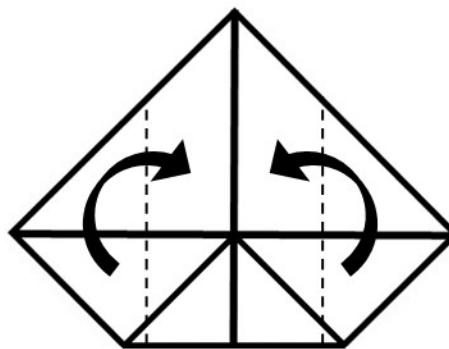
Step 4

Fold the corner up so the tip touches the centre.

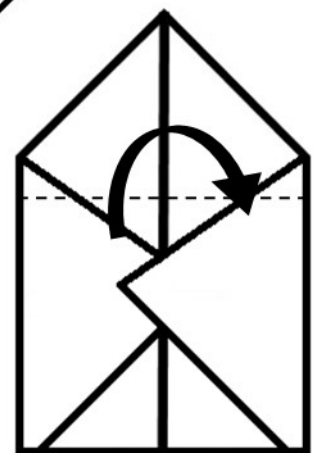


Step 5

Make two folds about a centimetre in from the bottom triangle on both sides of the diamond. The sides of the big diamond should overlap part of the smaller triangle.

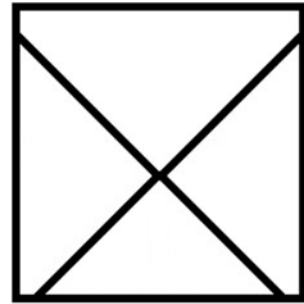


Glue or tape the sides of the diamond to the bottom triangle.



Step 6

Fold the top corner down so it overlaps the two sides.



Your envelope is completed! Decorate the back however you'd like, insert a note or letter and seal it with tape or a nice sticker.

Think about it:

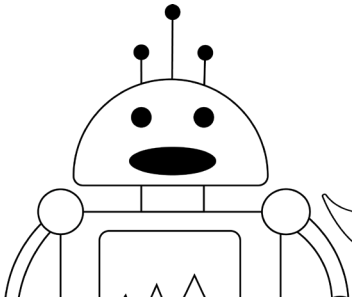
What would you do differently if you wanted to put something really big in your envelope?

How would the design change if you wanted to put something loose and small like sand or beads in your envelope?

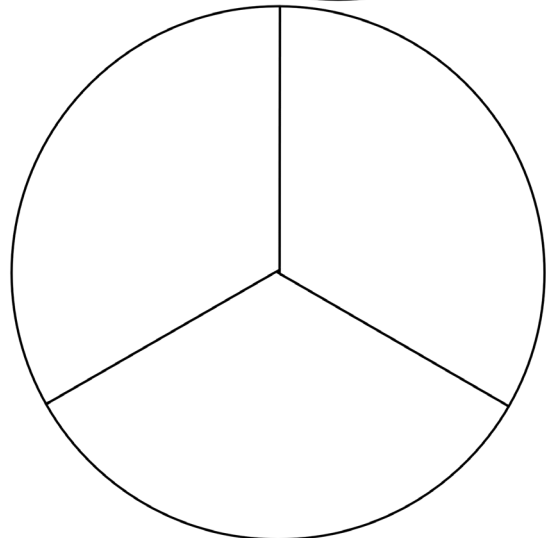
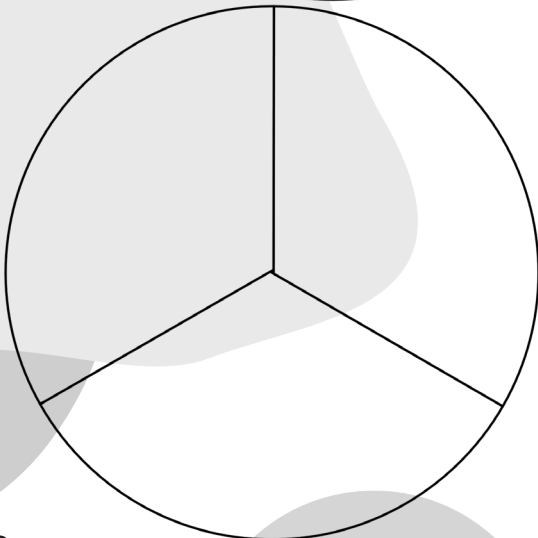
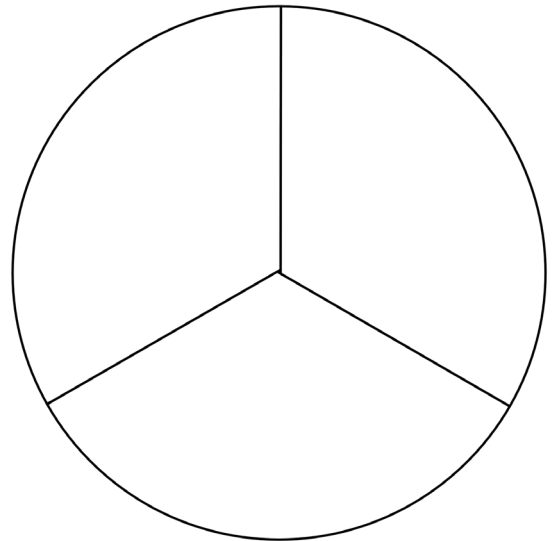
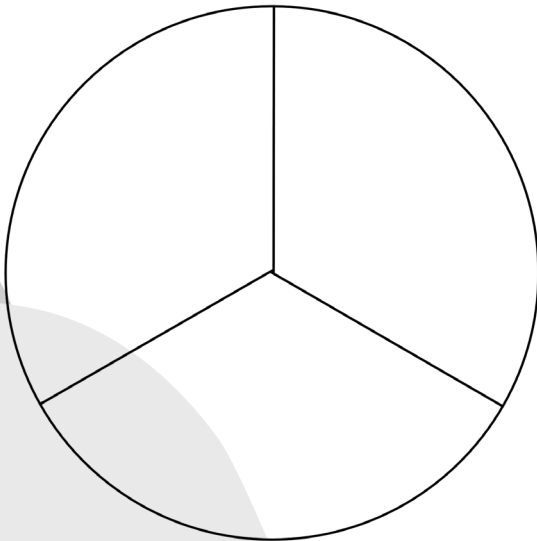
Living Things Careers

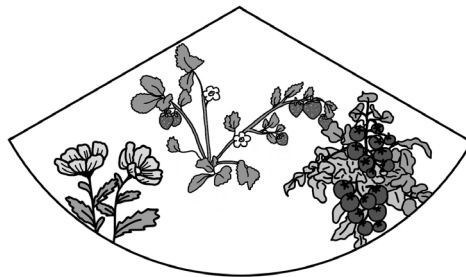
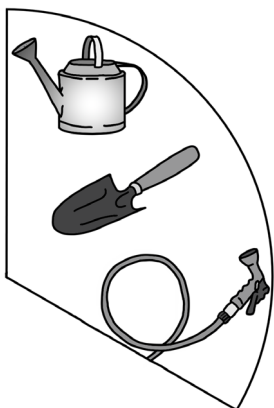
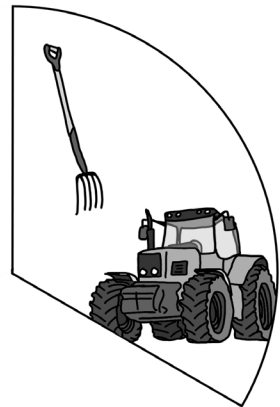
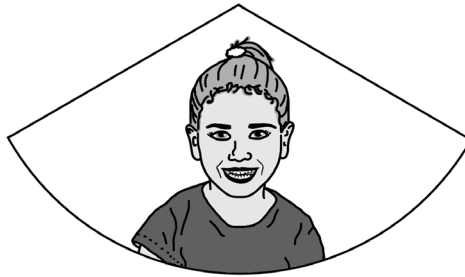
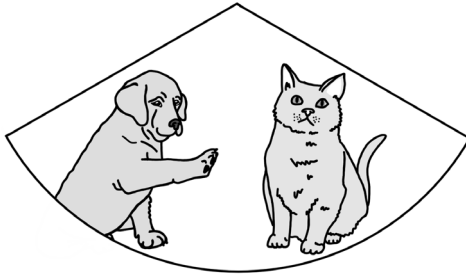
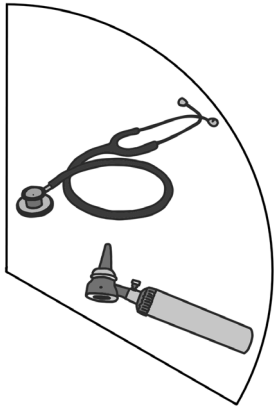
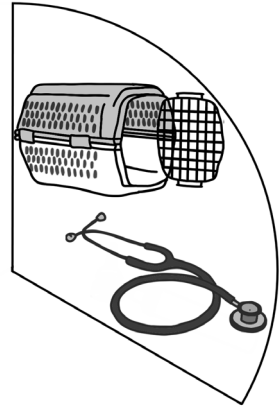
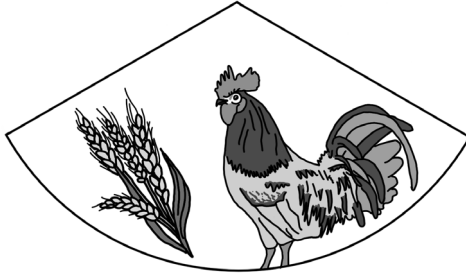
There are lots of different jobs where people take care of living things! Plants, animals, and people are all living things. When taking care of living things, the person working will wear special clothes and use tools to help them do their job.

Can you make the clothes, living things, and tools for each of the jobs? Cut out the pictures on the next page and put them in the bubbles below.



For this game, you are matching the pictures based on things that are similar and seem to belong together! Computers are also really good at doing this, and people can use computers to help them sort and organize data.



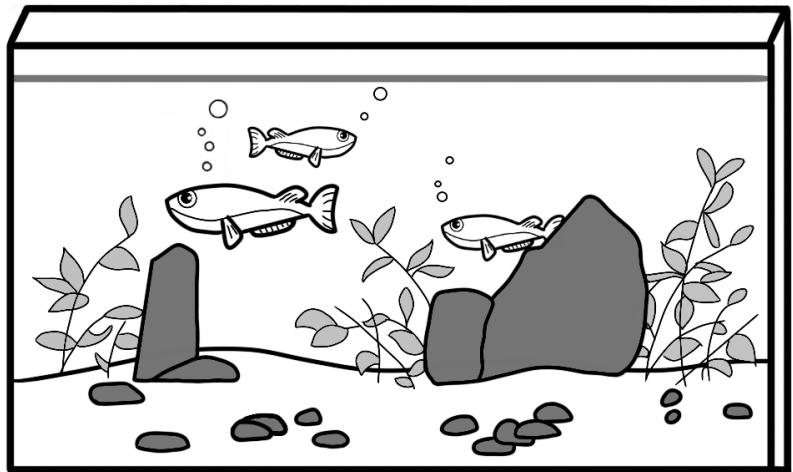
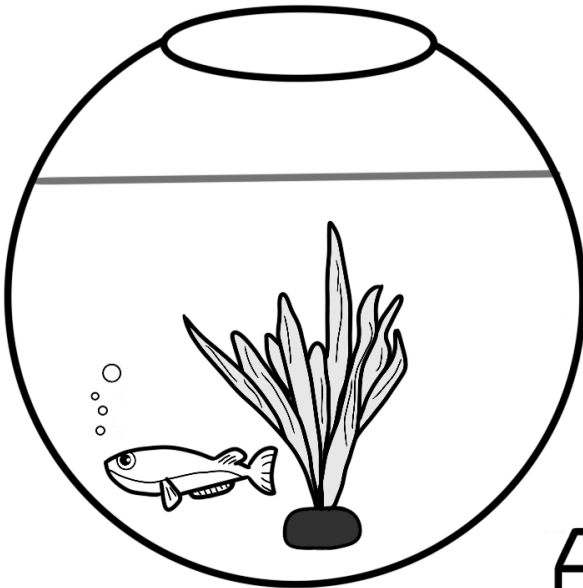


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Spot the Difference

Robots are really good at finding mistakes! This is called debugging. Having a pet or a plant is a big responsibility. Help Esiw learn the best way to take care of a plant and a pet!

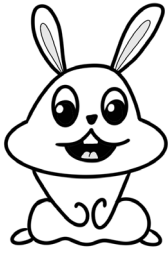
Can you spot the differences between taking good care of a pet vs not taking good care of a pet? Circle the differences in the fish tank vs the fish bowl.



Which is the better way to take care of the fish?

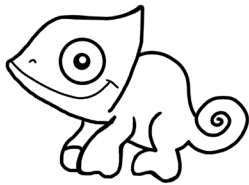
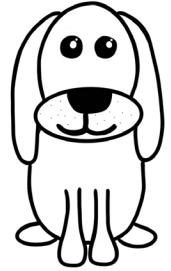
What should we do to take care of other pets at home?

Taking Care of Your Animal



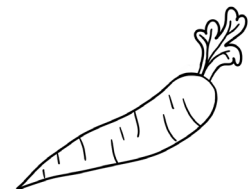
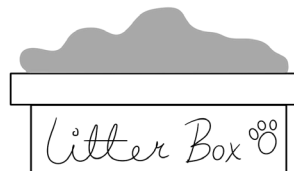
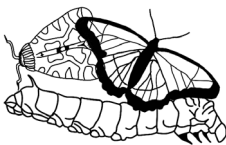
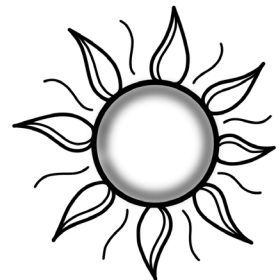
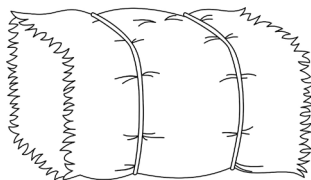
This is Billy the Bunny. He lives in a little cage with lots of hay, a little box and a little water bottle. He loves to eat vegetables like tomatoes and carrots!

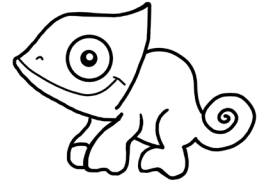
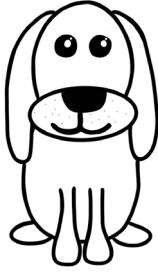
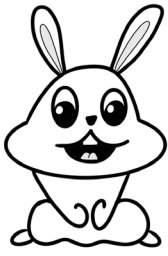
This is Dibby the Dog. They love to run and play! Dibby eats lots of meat, drinks lots of water and loves to sleep in warm places.



This is Lala the Lizard. She eats fruits and bugs and drinks lots of water! She lives in a cage full of leaves and branches that are very warm, so that Lala is comfortable.

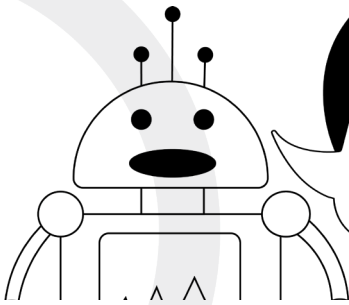
Look at the pictures below. What are the things that Billy, Dibby and Lala need to be happy? Can you draw them in the Billy, Dibby and Lala's boxes on the next page?





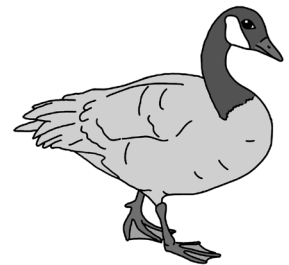
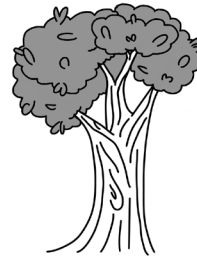
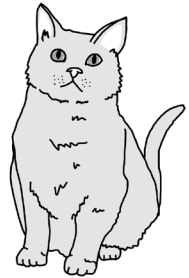
Shadow Matching

Have you ever looked around and noticed shadows? These are created by something that is blocking light. This could be light from the sun, or from lightbulbs indoors. Wherever the light can't reach there is a dark spot that we call a shadow. The shadow will look like whatever created it! Can you connect the pictures with their shadows? Look for patterns and unique shapes to help you match them.



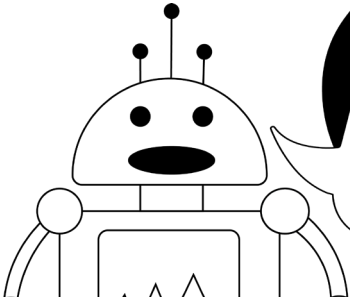
In this activity you are looking at each picture, and spotting any patterns or similar shapes. Computers can also do this! They can take data - like different pictures - and spot things that are the same or different, and then sort the data or tell us about it! This is called **pattern recognition**, which means noticing patterns.

Part 1

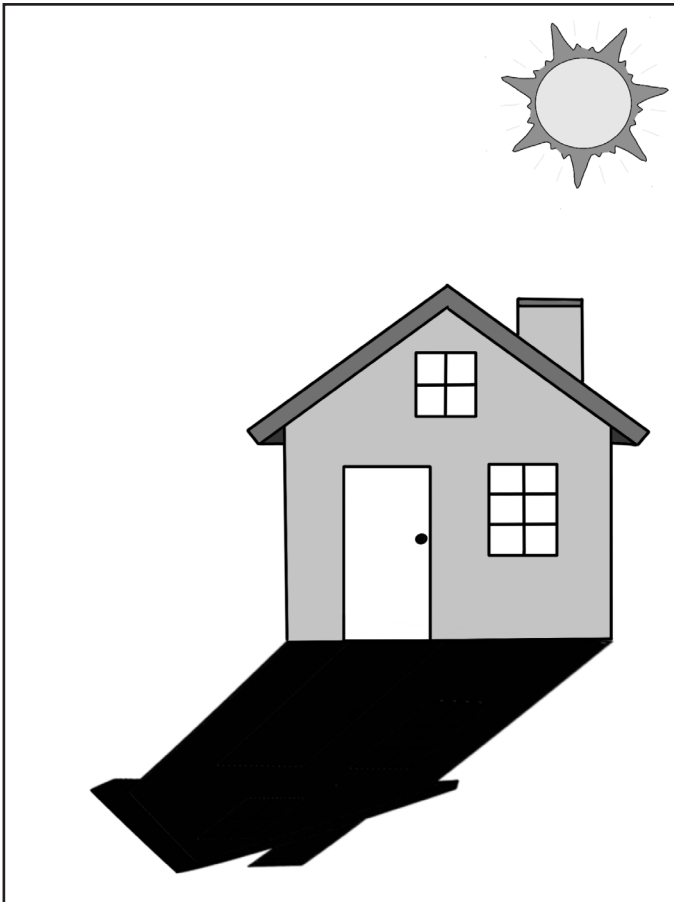


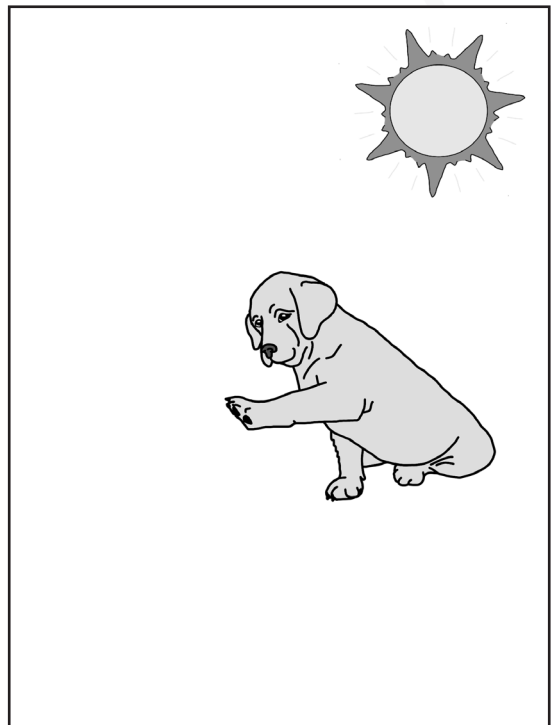
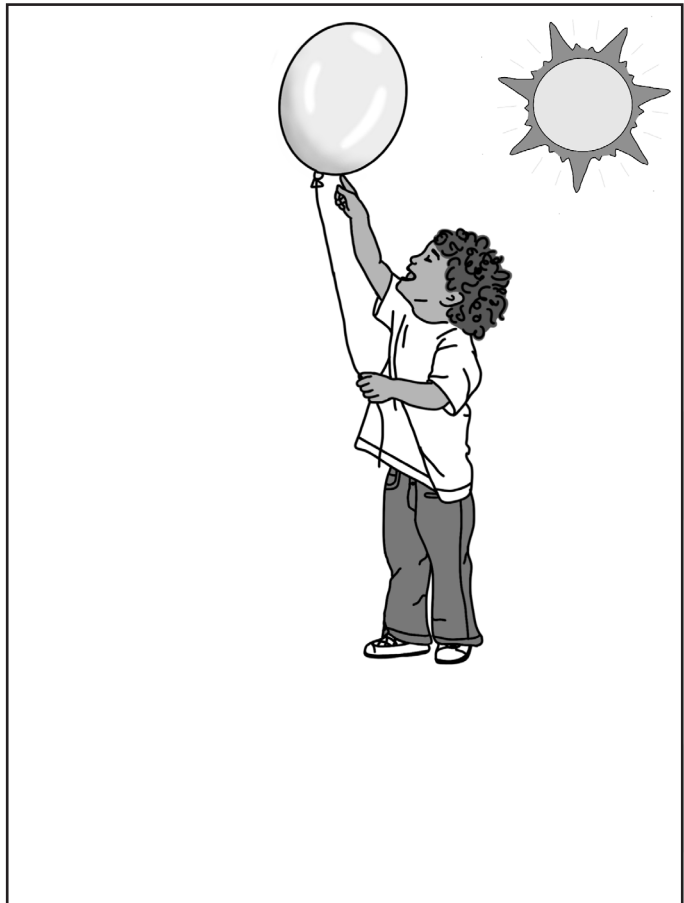
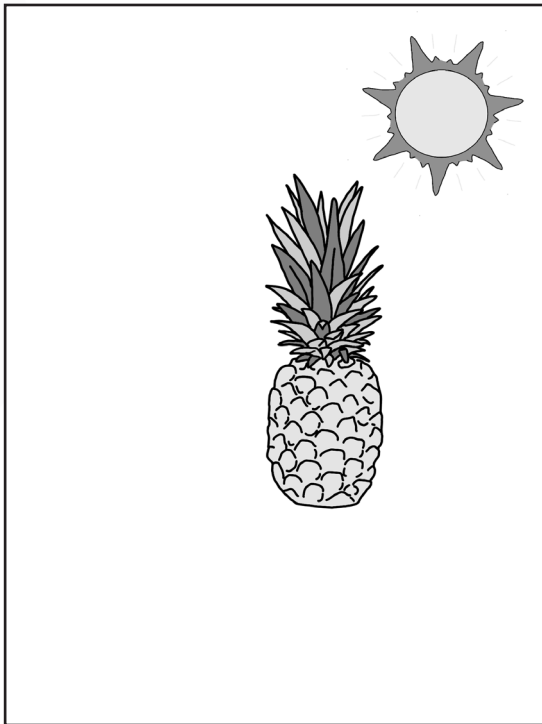
Part 2

Great job! Now that you have practiced connecting the pictures to the shadows, it's time to draw! Complete the pictures by drawing in the missing shadow. Pay attention to the shapes that you see! To help, the first one has already been done for you.



To complete each picture, you are looking at what is already there and then adding in the shadow. This is something that computers can do too! It's called **image processing**, which is looking at a picture to learn from it or change the picture in some way.





Answer Keys

What is the Best Paper? (Page 5)

- Toilet -> Toilet paper
- Spilled drink -> Facial tissue
- Gift -> Wrapping paper
- Eggs -> Egg carton
- Moving truck -> Cardboard box
- Black board -> Book
- Runny nose -> Facial tissue

Which Trees Lose Their Leaves? (Page 6)

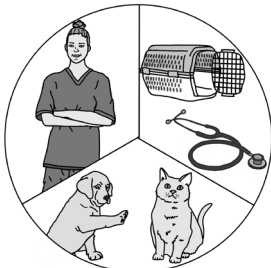
Tree that loses it's leaves:



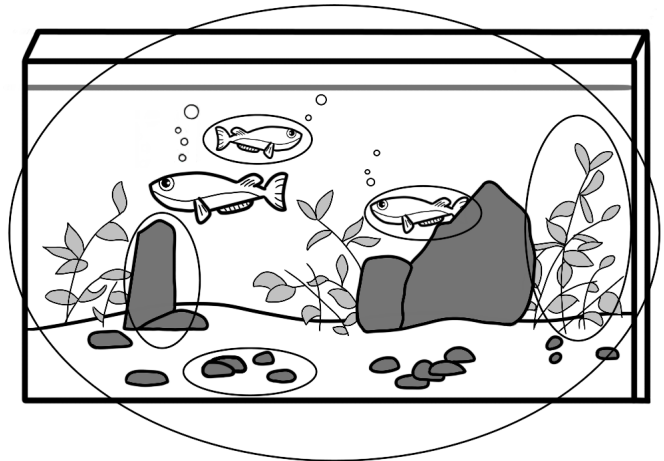
Needles:



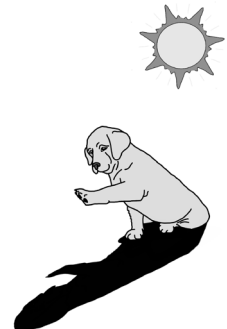
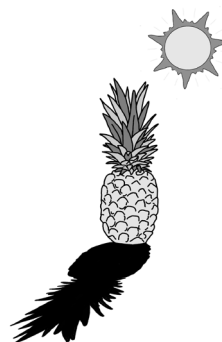
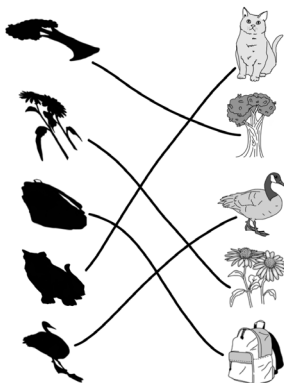
Living Things Careers (Page 10)



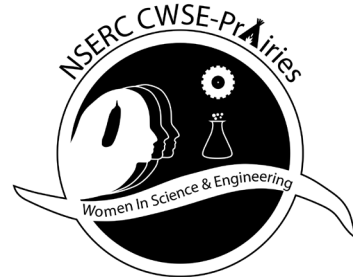
Spot the Difference (Page 13)



Shadow Matching (Pages 16-18)



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