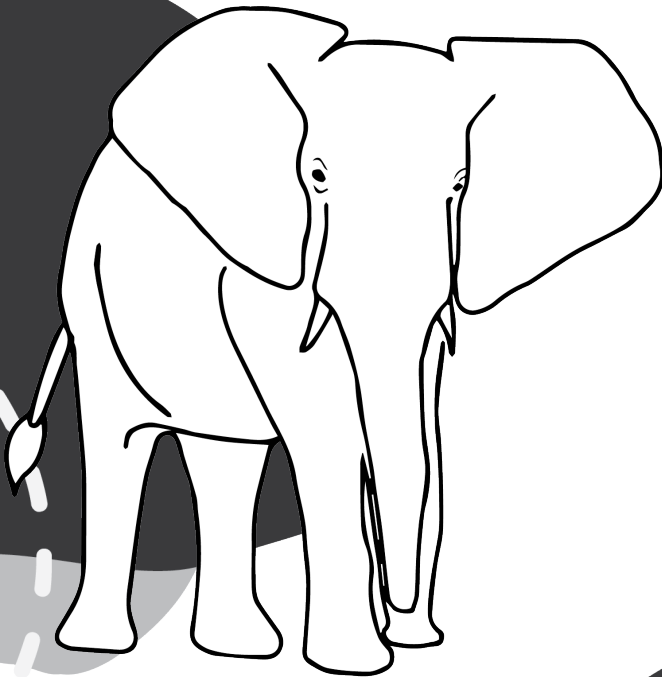# WISE Activity Booklets

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

Grade K-1
AUGUST 2020

Trees - Colours - Paper
Living Things - The Senses - Materials Science
Daily and Seasonal Changrs
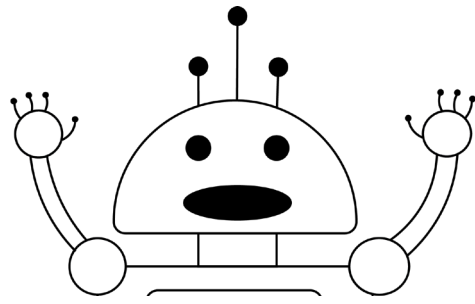
Hello there!

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!
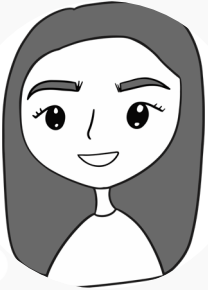
Brandi

Brandi is in her second year of the Bachelor of Science program and plans to apply to the College of Pharmacy in the future. When she's not studying chemistry she loves to listen to music, hang with her cats, and nap!

Robyn

Robyn is going into her forth year of civil Engineering at the University of Manitoba. She enjoys riding her bike, soaking up sunshine and watching live music. Robyn also loves all things science and is pumped about a summer filled with STEM fun.
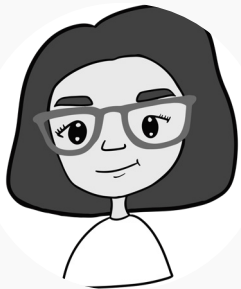
Victoria

Victoria just finished her first year as a Science student at the University of Manitoba and is planning on becoming a nurse. She loves to cook, read and take care of plants in her free time!

Zoe

Zoe just finished her first year of Engineering, and is entering the department of Civil Engineering in the fall. She loves math, and in her free time enjoys walking her dog, as well as playing volleyball and ultimate frisbee.
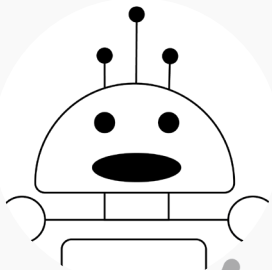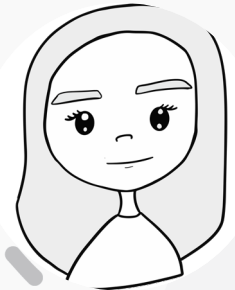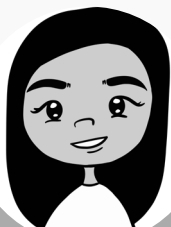
Esiw the Robot

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!
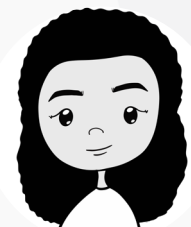
... and our Incredible Editors!

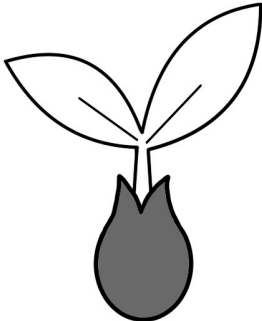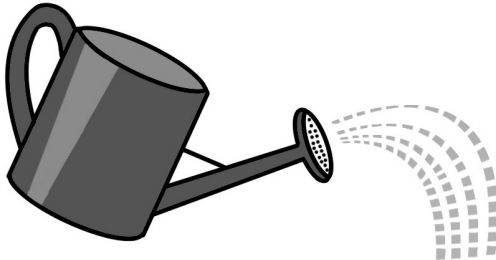**Alex**   **Bea**   **Mahalia**   **Michelle**

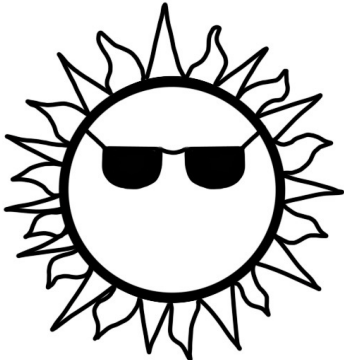# Code a Tree, or Three!

In order for trees to grow, they need 3 things:
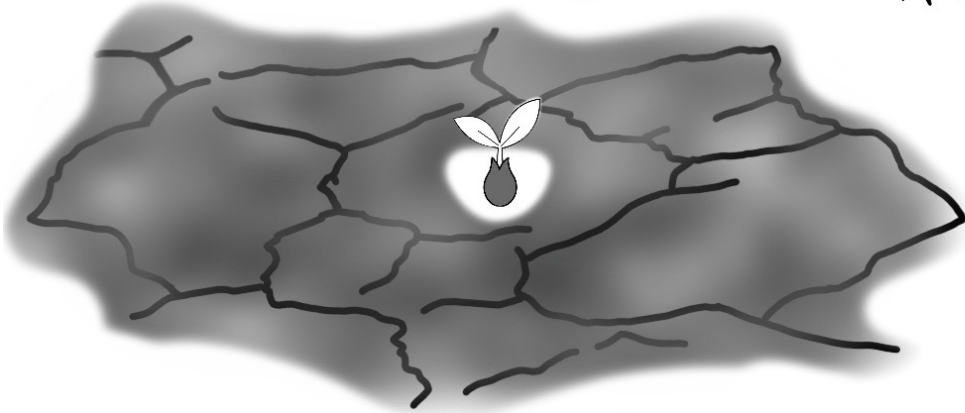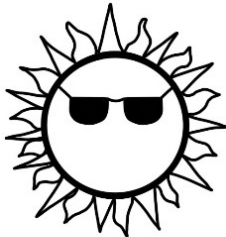
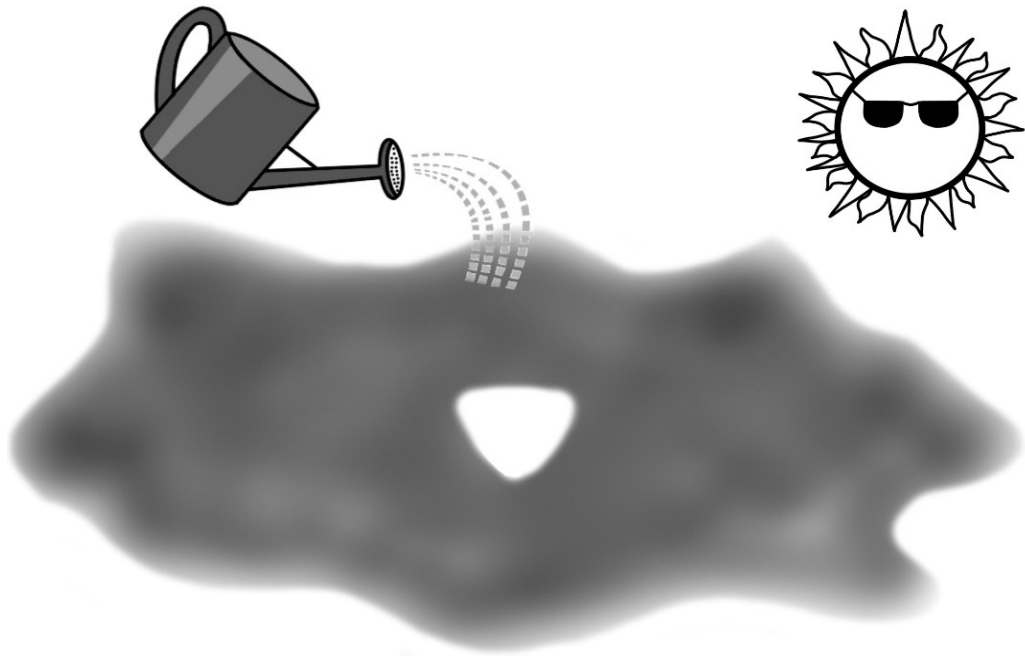**1 = SEED**

2 = WATER

3 = SUNLIGHT
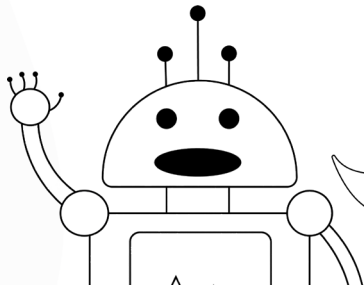
Hi! Esiw here. I want to grow 3 trees, but I can't because my computer system has a bug and I am missing steps. Can you help me **debug?**

In each situation below and on page 5, circle what step is missing to grow the tree!

Which step is missing?

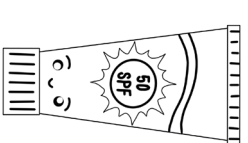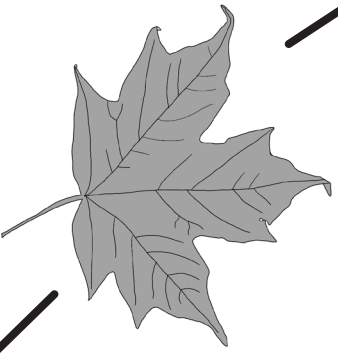1   2   3

SLO : K-1-01

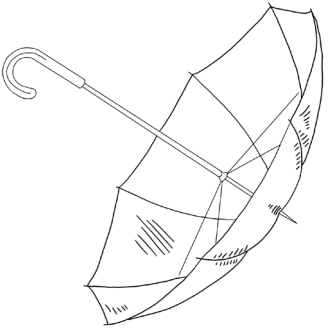**Which step is missing?**

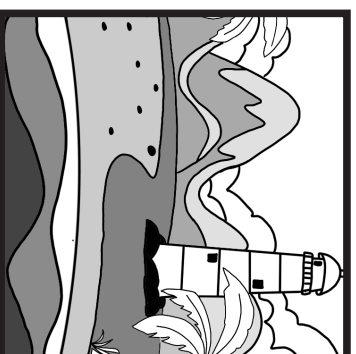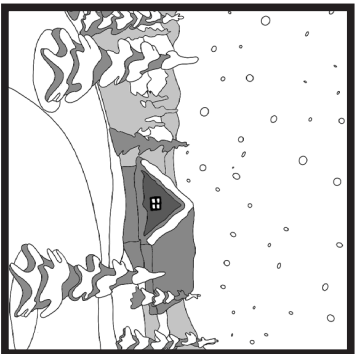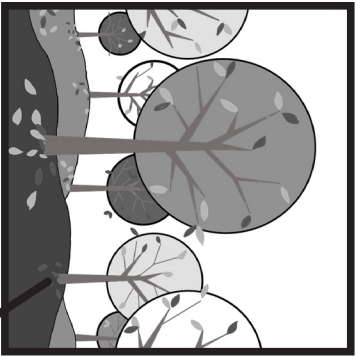1   2   3

Which step is missing?

1   2   3

Match! That! Season!

Draw lines to connect the scenes and items to the correct season names below. We've completed one for you to help you out!
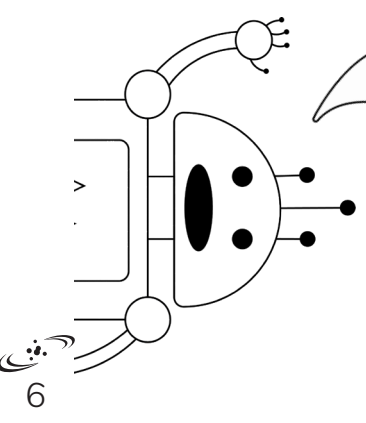
SUMMER

WINTER

FALL

SPRING

Data sets are groups of information that computers and machines use for codes. Matching the scene and item to the right season is like creating your own data sets!
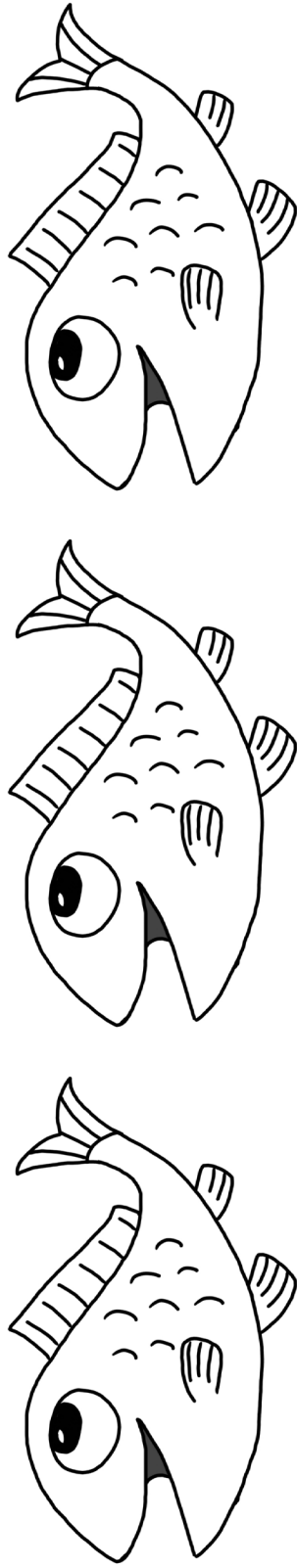
6

Colour Patterns! (Part 1)

Follow the prompt in each section to colour each pattern below and on page 8!
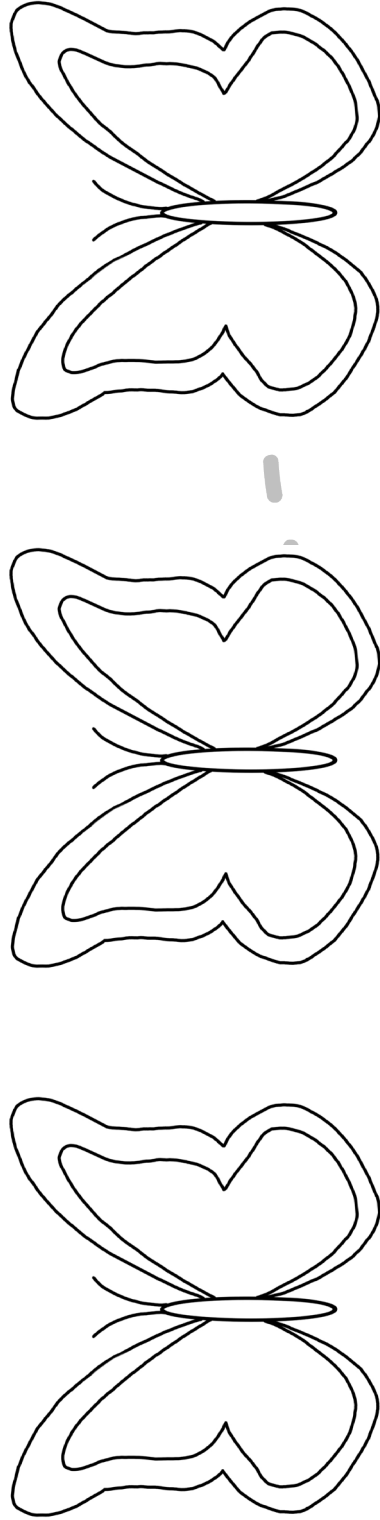
PROMPT 1

Using **RED**, **YELLOW**, and **ORANGE**, colour in the fish from **lightest to darkest.**
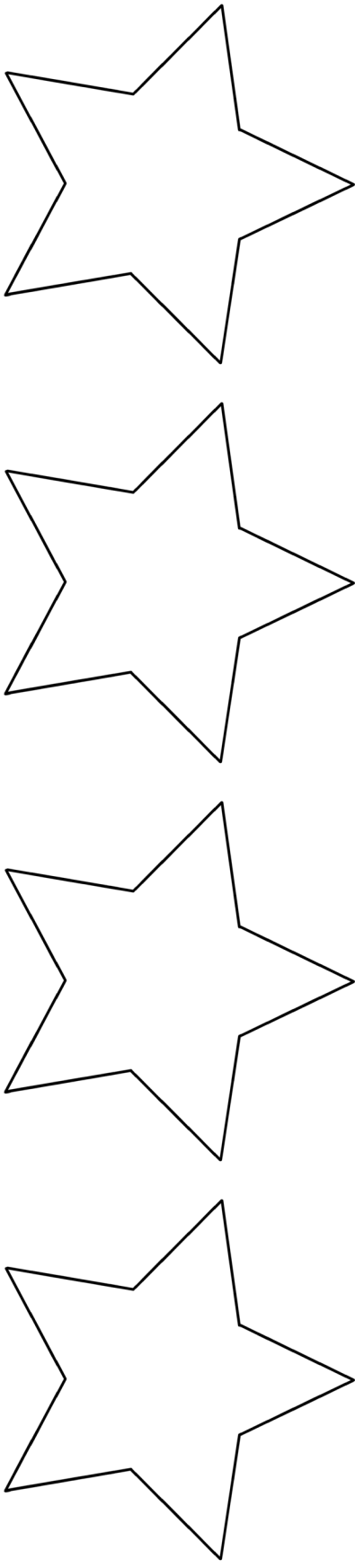
PROMPT 2

Using **RED**, **YELLOW**, and **ORANGE**, colour in the butterflies from **darkest to lightest.**
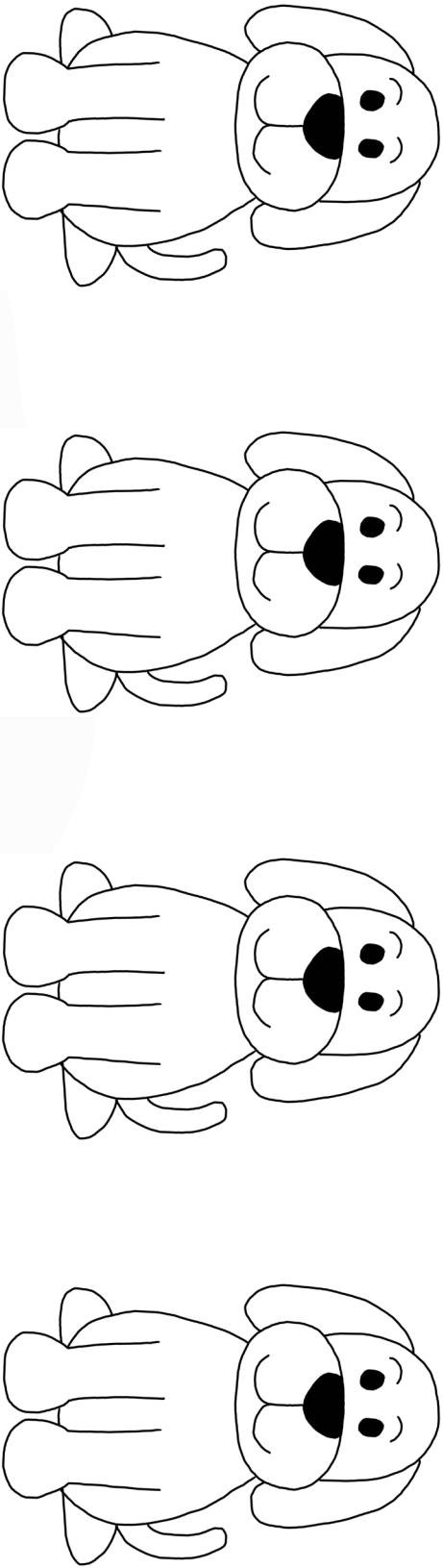
Colour Patterns! (Part 2)

PROMPT 3

Using **PINK** and **PURPLE**, colour in the stars in a *light-dark light-dark* pattern.
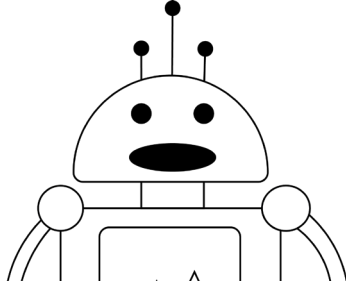
PROMPT 4

Using **BLUE** and **YELLOW**, colour in the dogs in a *light-light dark-dark* pattern.

Coding Paper

In coding a **variable** is like a labeled box where you can have many different things inside of the same category. For example, a variable can be **balls**, and within the variable of balls we can find blue balls, red balls or green balls.

Now that you know so much about coding, let's teach Esiw about paper and the variables of paper! Here are the different variables we will look at:

TASK = if the paper can be used for drawing, eating, packing, or cleaning

ABSORBENCY = if the paper can soak up water (absorbent or not)

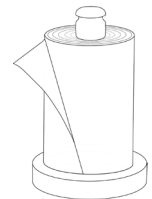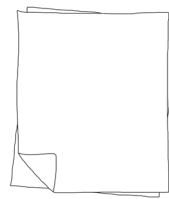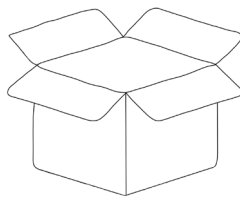**THICKNESS** = if the paper is thick or thin

SMOOTHNESS = if the paper is smooth or rough

COLOUR = if the paper is white, brown or multicolour

In the box below, match each paper product to the matching variables by drawing lines! We've completed one for you.

| drawing | packing | eating | cleaning |

| absorbent | not absorbent |

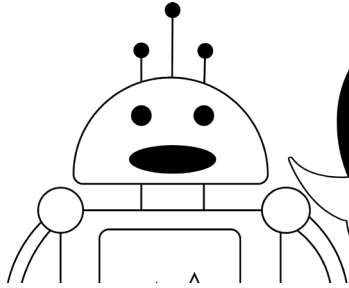| thick | thin |

| smooth | rough |

| white | brown | multicolour |

Coding Animals (Part 1)

Computers like me need to be given info, or **data**, in order to function. This data is often stored in **data sets**. You can think of data sets as collections of organized info. Help me complete the data sets for each of the animals below!

Cut out the different parts of the animals on Page 11 and glue them together in the correct animal boxes below and on Page 13. To help you out, we separated the parts into variables, and listed what variables are needed for each data set.

ELEPHANT DATA SET

Variables needed:
EARS
EYES
RANDOM-TAIL
RANDOM-TRUNK
BODY
LEGS
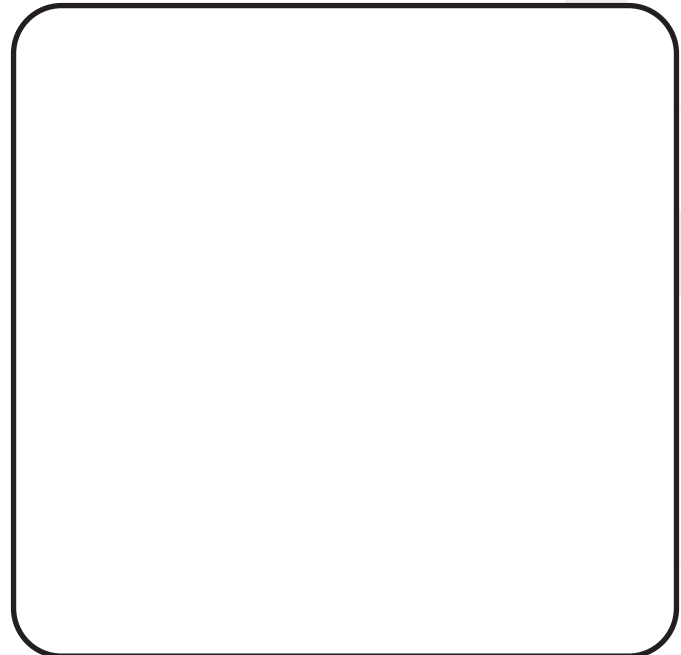
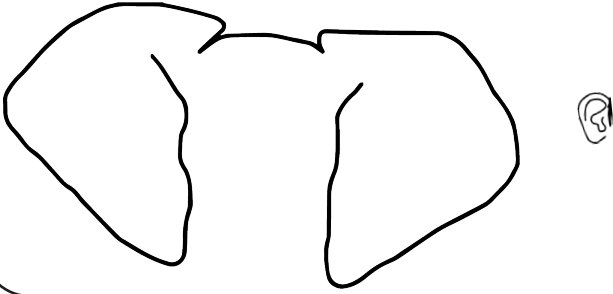## SPIDER DATA SET

Variables needed:
EYES
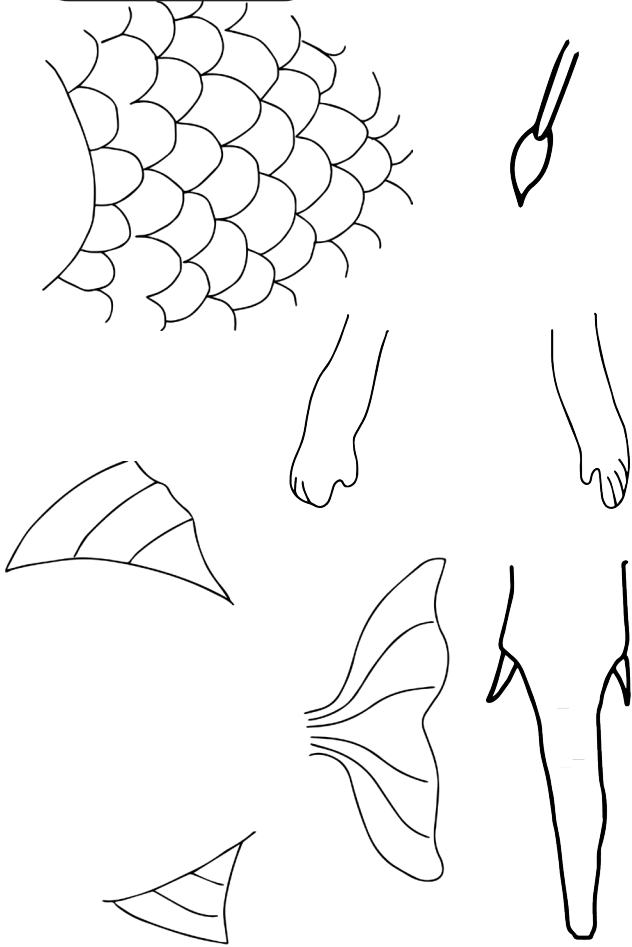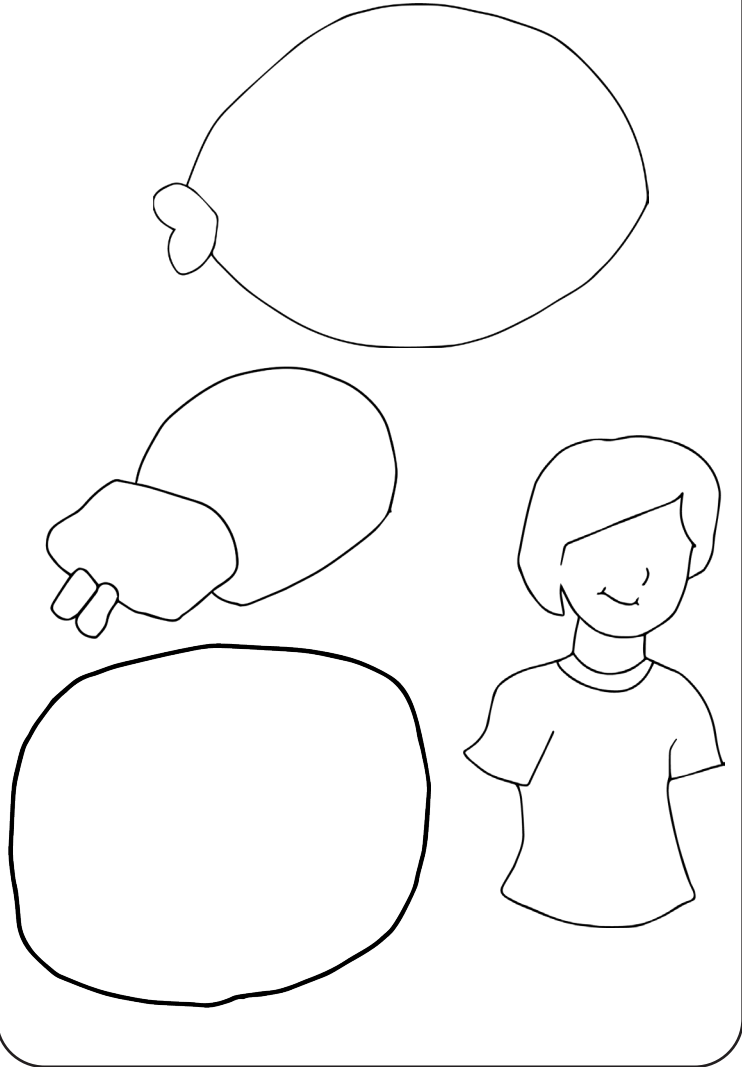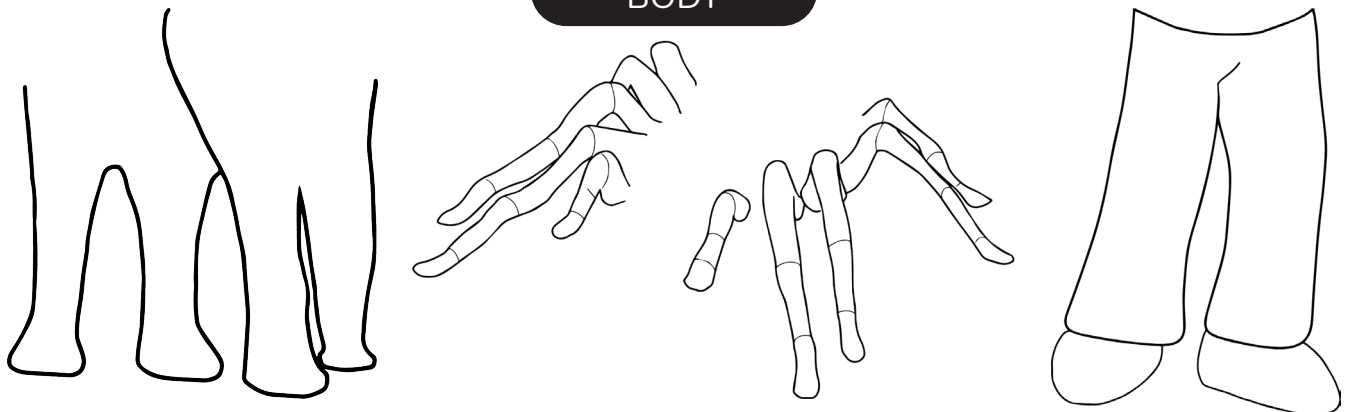BODY
LEGS

SLO : 1-1-02, 1-1-03

EARS

EYES

RANDOM

BODY

BODY

This page is intentionally left

blank, because the previous

page is meant to be cut up.

Coding Animals (Part 2)

FISH DATA SET
>>>>>

Variables needed:
EYES
RANDOM-SCALE
RANDOM-FINS
BODY

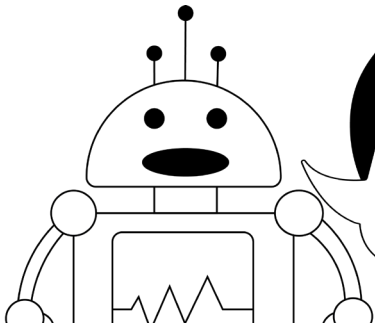HUMAN DATA SET
>>>>>

Variables needed:
EARS
EYES
RANDOM-ARMS
BODY
LEGS

Movie Mayhem! (Part 1)

In many popular movies, we see animals and plants in nature doing crazy cool things! But how much is real and how much is imaginary? In this activity, take your best guess if you think something from a movie is *fact* or *fiction*!

Let's use a computer language called **binary** for this one! There are only two options in binary: **1** or **0** (like yes or no). If something is a fact, circle 1, and if something is fiction, circle 0. Since I am a machine, I understand binary better than English!

EXAMPLE: The Secret Life of Pets

The Secret Life of Pets shows us that animals can talk to each other in English or French! *Can they speak human languages like English or French in real life?*

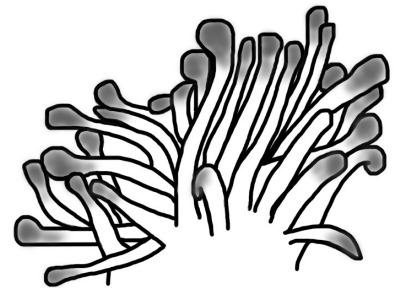**1**   **(0)**

SCENARIO 1: Finding Nemo

In Finding Nemo, Nemo and his father are clownfish that live in an anemone which stings animals that pass by. *Do you think clownfish live in sea anemones?*

1   **0**

SCENARIO 2: Tangled

In Tangled, a golden flower gives Rapunzel magical hair that can heal wounds. *Are there actually healing properties in certain flowers?*
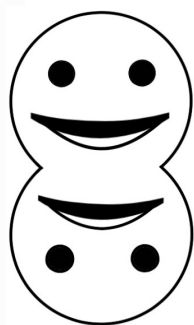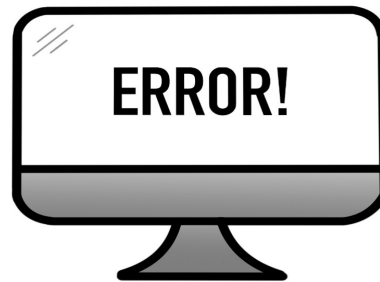
1   **0**

Movie Mayhem! (Part 2)

SCENARIO 3: Wreck-it Ralph

In Wreck-It Ralph, Ralph meets Vanellope von Schweetz, who is a "glitch" from a racing game. A glitch is a computer error. *Can glitches happen on real computers?*

1   **0**

ERROR!

SCENARIO 4: Inside Out

In Inside Out, emotions Joy, Sadness, Anger, Disgust, and Fear control the feelings and actions of young Riley. *Do you think emotions can control what we do?*

1   **0**

SCENARIO 5: Frozen

In Frozen, Elsa learns about her power to move ice and snow, accidentally putting her kingdom in an eternal winter. *Can humans control the weather?*
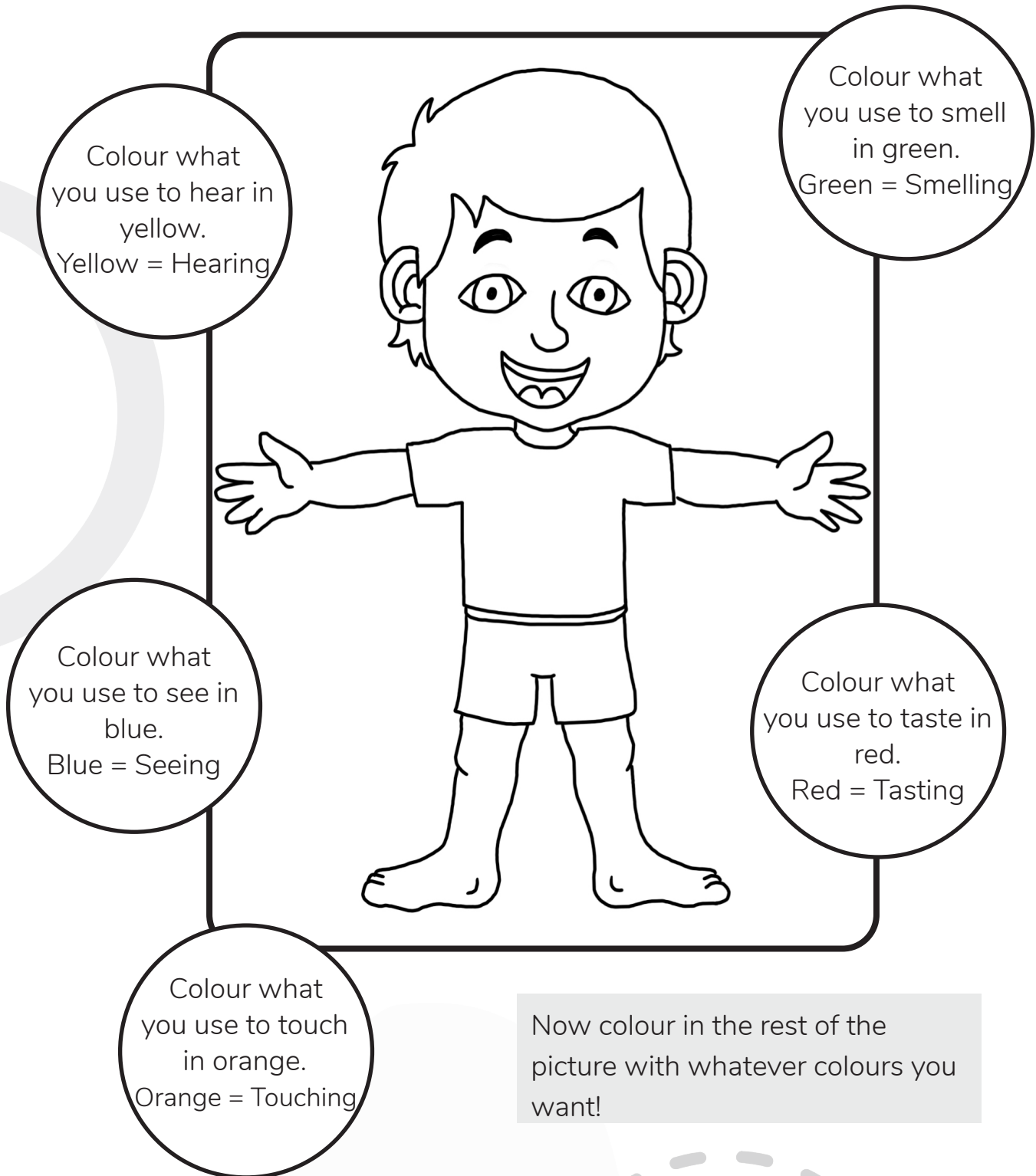
1   **0**

SCENARIO 6: How to Train Your Dragon

In How to Train Your Dragon, Hiccup breaks the tradition of fighting dragons and befriends a Night Fury dragon. *Do you think dragons exist or ever existed?*

1   **0**
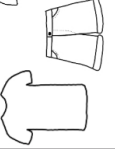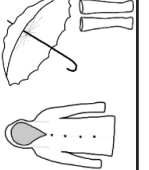
The Five Senses

Let's learn more about what body parts we use for our Five Senses! Follow the instructions below to colour in the image of a person.

Colour what you use to smell in green.
Green = Smelling

Colour what you use to hear in yellow.
Yellow = Hearing

Colour what you use to see in blue.
Blue = Seeing

Colour what you use to taste in red.
Red = Tasting

Colour what you use to touch in orange.
Orange = Touching

Now colour in the rest of the picture with whatever colours you want!

SLO : 1-2-02

_____'s Weather Diary (Part 1)

Welcome to your weather diary. You can record and collect data about the weather here. You can also predict what the weather is going to be like the next day. The people who predict the weather are called meteorologists. They study the atmosphere and its phenomena, the cool things that happen.

EXAMPLE

	Today:	Tomorrow:
rain	X	
clouds	It got cloudy at the end of the day!	
sunny		X
windy	X	
temperature		
What to wear?		

MONDAY

	Today:	Tomorrow:
rain		
clouds		
sunny		
windy		
temperature		
What to wear?		

TUESDAY

	Today:	Tomorrow:
rain		
clouds		
sunny		
windy		
temperature		
What to wear?		

_____'s Weather Diary (Part 2)

WEDNESDAY

	Today:	Tomorrow:
rain		
clouds		
sunny		
windy		
temperature		
What to wear?		

THURSDAY

	Today:	Tomorrow:
rain		
clouds		
sunny		
windy		
temperature		
What to wear?		

FRIDAY

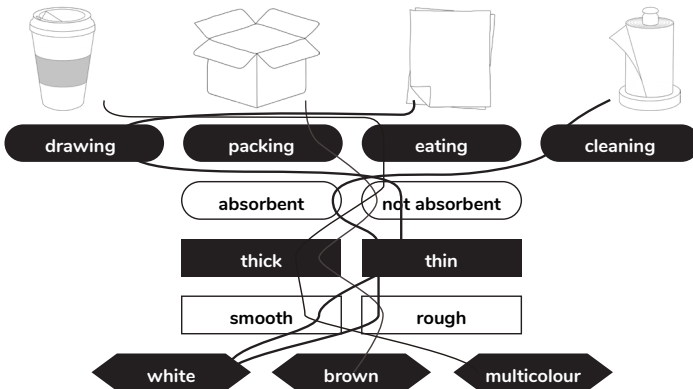|	Today:	Tomorrow:
rain		
clouds		
sunny		
windy		
temperature		
What to wear?		

Answer Keys

Code a Tree, or Three! (Pages 4-5)

2, 1, 3

Match! That! Season! (Page 6)

SUMMER   WINTER   FALL   SPRING

Coding Paper (page 9)

drawing   packing   eating   cleaning

absorbent   not absorbent

thick   thin

smooth   rough

white   brown   multicolour
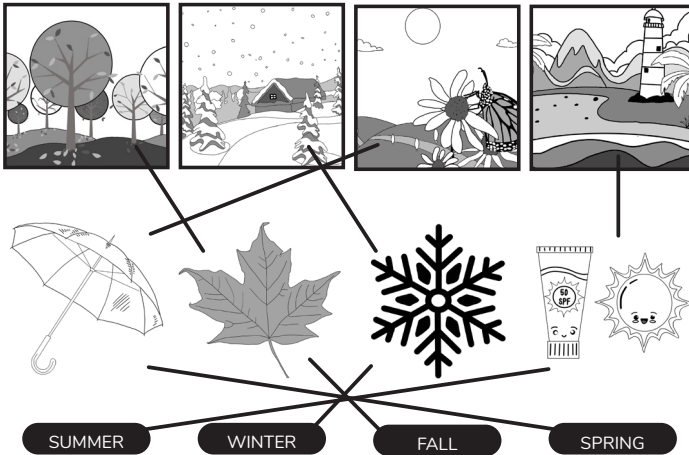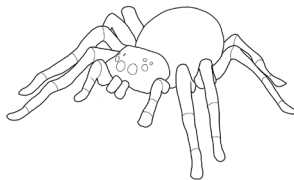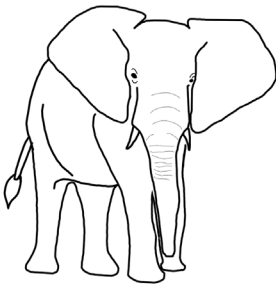
Coding Animals (page 10-13)
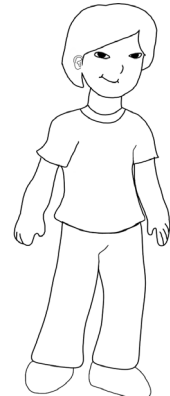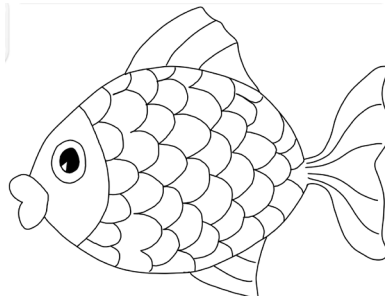
Movie Mayhem! (page 14-15)

Scenario 1: 1 = Fact - Sea anemones protect clownfish from predators.

Scenario 2: 1 = Fact - The Calendula or pot marigold has been known for its ability to help heal wounds, rashes, and even acne.

Scenario 3: 1 = Fact - Glitches can be caused by "bugs" or errors in the computer's coding.

Scenario 4: 1 = Fact - We often act certain ways because of our emotions at that point in time. If you are feeling angry, you may do something you usually would not do if you were calm.

Scenario 5: 0 = Fiction - Humans can only prepare for and predict the weather.

Scenario 6: 0 = Fiction - Flying, fire-breathing dragons are mythological creatures, but animals similar to them do exist/have existed. For example, some dinosaurs had the ability to fly, and Komodo dragons (extremely large lizards) resemble "dragons" but cannot fly nor breathe fire.

Thanks to our Amazing Sponsors!

ENGAP

MANITOBA AEROSPACE

NSERC CWSE-PrAiries
Women In Science & Engineering
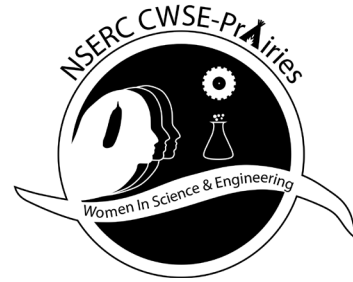
MOTOROLA SOLUTIONS FOUNDATION

ENGINEERS GEOSCIENTISTS MANITOBA

green équipe team verte
Manitoba

NSERC CRSNG

UM | Price Faculty of Engineering

faculty of SCIENCE
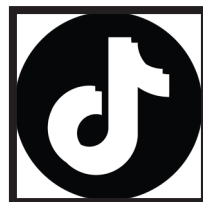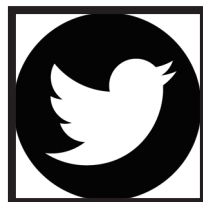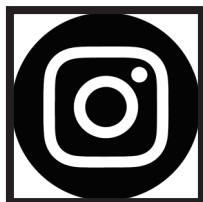discover the unknown + invent the future

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A network member of actua.ca

actua
Youth · STEM · Innovation

With funding from
Canada

For more fun, STEM content, visit us at wisekidneticenergy.ca and follow us on social media!

@wisekidnetic

WISE Kid-Netic Energy