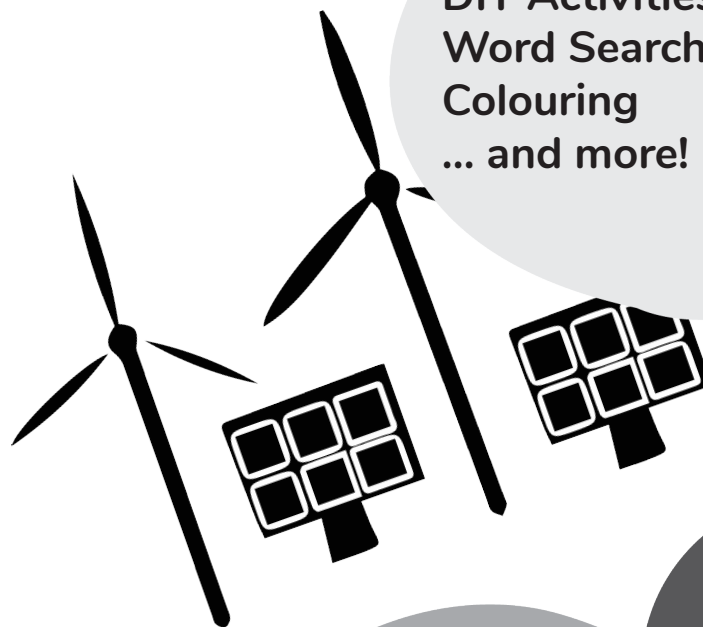


# WISE Activity Booklets

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



DIY Activities  
Word Searches  
Colouring  
... and more!



University  
of Manitoba

WISE Kid-Netic Energy is a proud member of Actua

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Youth · STEM · Innovation

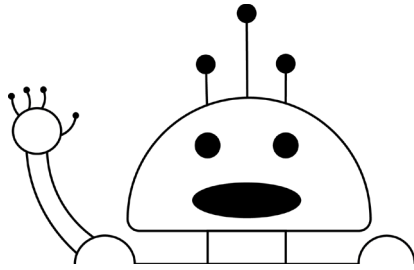
With funding from

**Canada**

## Grade 2

### MAY 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!

**Amaris**

**Amaris** just finished her first year as a science student at the University of Winnipeg and plans on majoring in biology. In her free time she like reading, playing piano and baking

**Gagan**

**Gagan** just finished her fourth year of her honours degree in psychology at the University of Manitoba. She enjoys being creative and loves to learn! In her free time she like reading, playing piano and baking!

**Olivia**

**Olivia** just finished her second year of biosystems engineering at the University of Manitoba. She hopes to work in renewable energy or water treatment in the future. In her free time, she plays and refs touch football and enjoys playing the piano.

**Reem**

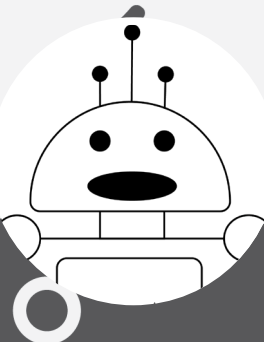
**Reem** just finished her first year as a science student at the University of Manitoba, her favorite classes are psychology and microbiology. In her free time, she loves to watch movies and bake desserts.

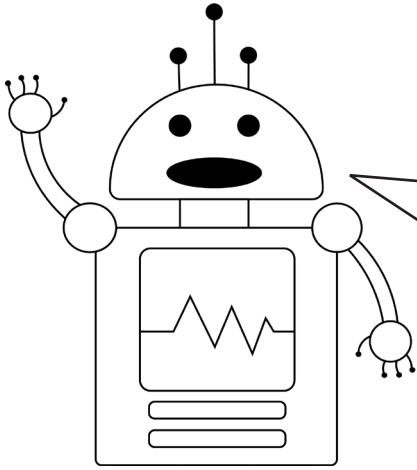
**Victoria**

**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.

## 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!



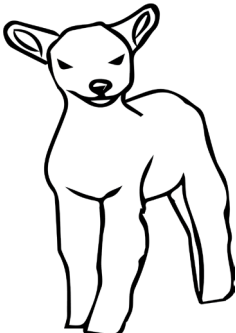
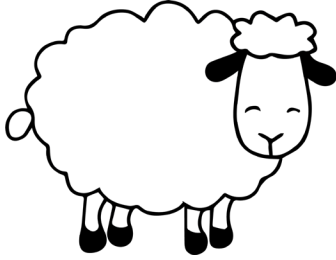
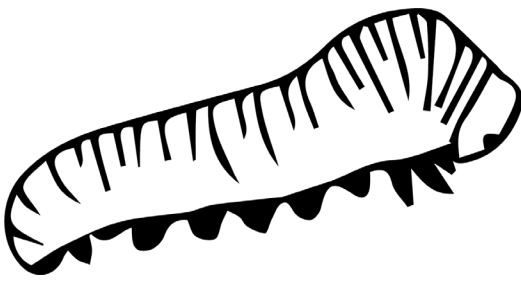
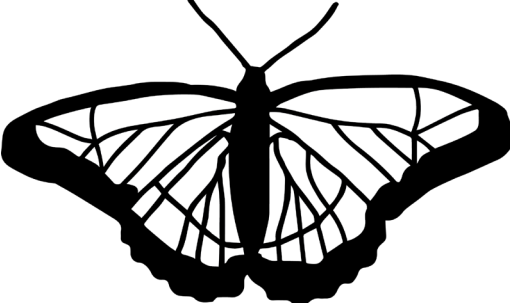



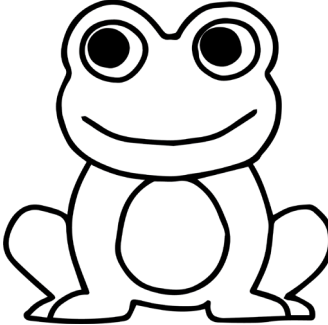
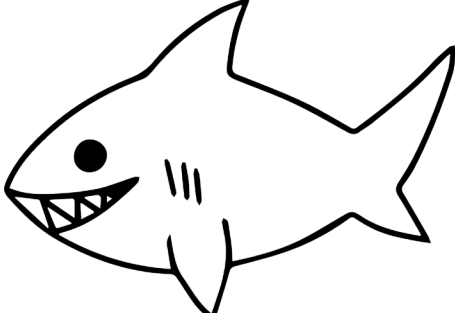
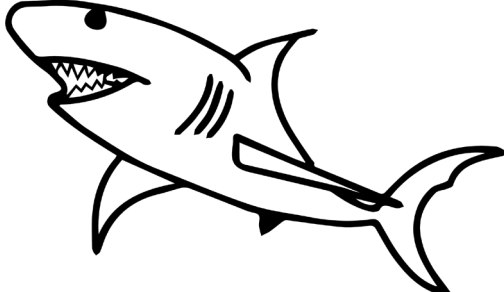
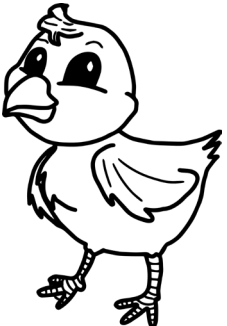
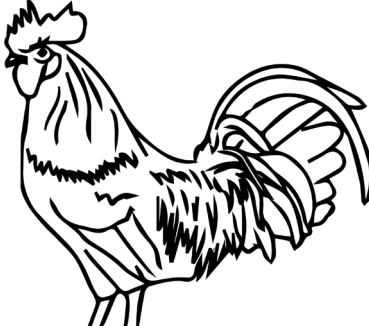
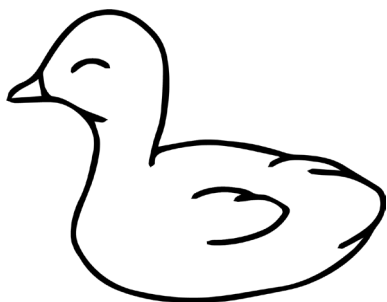
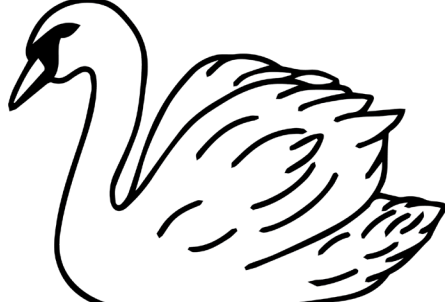
# Decode the Animals

Can you help me? I messed up translating these words and translated it to symbols instead! Can you use the decoder to decode what the names of these baby and adult animals are?

## Decoder

A = +	F = Ω	K = ?	P = \$	U = }
B = >	G = =	L = &	Q = <	V = %
C = {	H = -	M = *	R = #	W = //
D = //	I = )	N = >	S = ~	X = :)
E = !	J = (	O = @	T =	Y = ^
				Z = :(

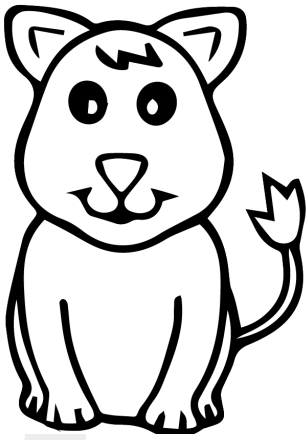
 1	 2
_ & _ + _ * _ >	_ ~ _ - _ ! _ ! _ \$
 3	 4
{ _ + _    _ ! _ # _ \$ _ ) _ & _ & _ +	# _ > _ } _    _    _ ! _ # _ Ω _ & _ ^

 <p>5</p>	 <p>6</p>
<p>   +    \$ @ &amp; !</p>	<p>Ω # @ =</p>
 <p>7</p>	 <p>8</p>
<p>\$ } \$</p>	<p>~ - + # ?</p>
 <p>9</p>	 <p>10</p>
<p>{ - ) { ?</p>	<p>{ - ) { ? ! &gt;</p>
 <p>11</p>	 <p>12</p>
<p>{ ^ = &gt; !   </p>	<p>~ // + &gt;</p>

# How Lions Grow

Colour the different lions as they grow from a cub to an adult. Read about how they change.

Then write their name on the line. (Example: Cub)



A baby lion is called a cub.  
Cubs have fluffy and spotted fur.

\_\_\_\_\_



A 2 year old lion is called a sub-adult.  
Male sub-adults are starting to grow their manes.

\_\_\_\_\_



An adult is called a lion.  
Male lions have a large mane and they leave their group to form their own group.  
A group of lions is called a pride.

\_\_\_\_\_

# States of Matter Word Search

Find the words in the word search, but circle them in different colours based on what state of matter they are generally in. Circle gases in red, liquids in blue and solids in green.

O Q G U Z  
P U R Y S M N  
E V A P O R M  
H A I R Z F R  
F N N P Q X B  
A W I T N  
I R A X C D F S X  
D M T R P K Z R Z S L  
N I E C O L L Y W U O D W  
V R K W C F E J X N M O W  
E C I J K M H I Y D N O A  
X H D L O G U M A S P W Z  
S P H R V I P P O L X A L  
T R S B M F L A R B C  
E V K I I S B D U  
F L W L H D T G W A D O S  
I C I G E W I J R P H H B X C  
M B Q K G C J C M M R S K U J  
S U T U G Y Q M X K P P S X U G C  
W I J I G A S B C H O E G I D H P  
C L Z D Q R L I O Z K U C S A B X  
Q E G M I L K V C F Z E T A O P B  
K H J C J V F N O G K E T C H U P  
G O J P G U N J L L A L N D C Q S  
T F G K V C I C M U J Z Y G E  
R Y Y M L T N V V R Z A D

AIR  
GAS  
GOLD  
HELIUM

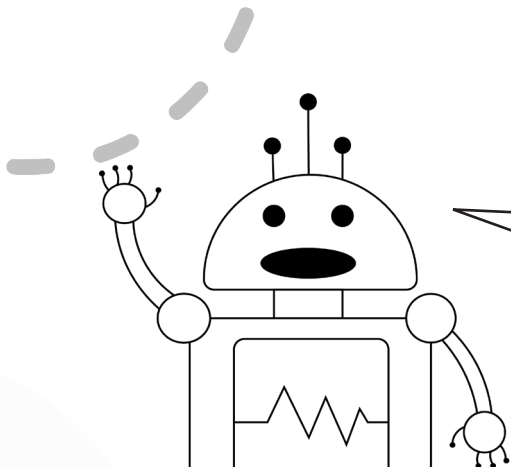
ICE  
JUICE  
KETCHUP  
LIQUID

MILK  
PICKLE  
PLASTIC  
ROCK

SODA  
SOLID  
STEAM  
SYRUP

VAPOR  
WATER  
WOOD

# Sorting Food



I love sorting things! Do you? Do you think you could help me sort some food into their food groups?

Cut out and colour the food on the next page and then glue them in the right food group

Fruits and Vegetables	Meat, Fish and Alternatives
Grain Products	Milk and Derivatives
	Fats, Oils, Sweets

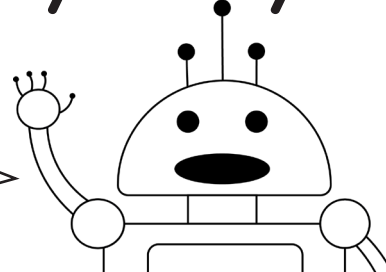




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# Jill's Wacky Wednesday Story

Oh no! I've sorted some of the words from this story into groups and now the story doesn't make sense! Can you help me re-write this story?



Use the words from the word bank below or use your own words to fill in the blanks and help Esiw, the robot, re-write the story.

Jill \_\_\_\_\_ down the street. She sees a \_\_\_\_\_ hippopotamus \_\_\_\_\_

the brand new statue of the Mayor! Jill takes her \_\_\_\_\_ and \_\_\_\_\_ over to

the Mayor's office! While on her \_\_\_\_\_, she sees a sewer rat and it says,

"\_\_\_\_\_!". The rat \_\_\_\_\_ off on its \_\_\_\_\_.

When Jill finally gets to the Mayor's office, she sees him eating a big bowl of

\_\_\_\_\_. Suddenly, a(n) \_\_\_\_\_ tornado is \_\_\_\_\_ the Mayor and it

sucks him out of the office. Using the \_\_\_\_\_ \_\_\_\_\_ that was out-

side the window, Jill \_\_\_\_\_ out of the building to escape. To everyone's sur-

prise it was the \_\_\_\_\_ who saved the Mayor and \_\_\_\_\_ City was

back to normal once again.

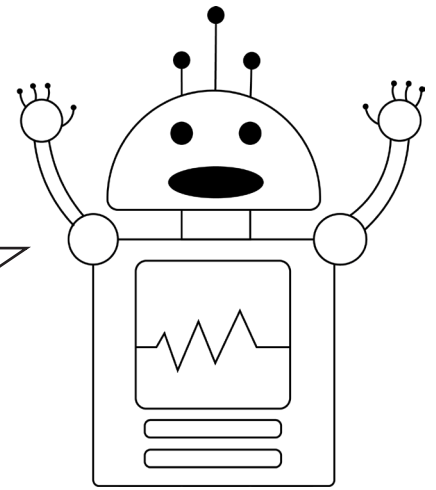
## Word Bank

Position	Movements	Inclined Plane	Vehicles
Above	Spins	Staircase	Cart
Below	Jumps	Wheelchair	Plane
Between	Pushes	Slide	Wagon
In front of	Pulls	ramp	Horse
Near	Dances	Ladder	Car
Behind	Gallops	skateboard	Scoot
Far		Ramp on	Boat
To the right/left		ramp	Motorcycle
Next to		vehicle	Bike
Under		Ski Hill	



# Build a Helicopter

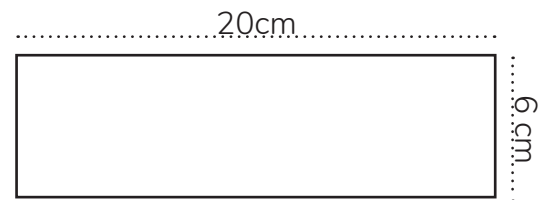
I am really good at following instructions, I have special instructions that tell me what to do all of the time! These special instructions are called a “code”! Are you good at following instructions?



Follow the instructions below to build your own helicopter. The materials you will need are: a piece of paper, scissors, a ruler, markers or pencil crayons and a paper clip.

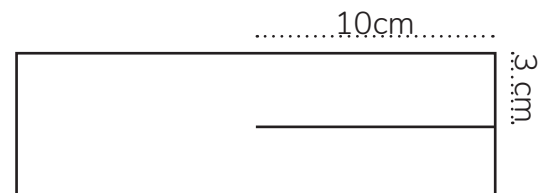
## STEP 1

Measure a rectangle on your paper that is 6cm wide and 20cm long. Cut it out.



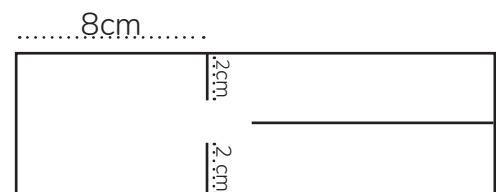
## STEP 2

Measure the halfway point of the short side of your rectangle (3 cm) and draw a line 10cm long. Cut on that line.



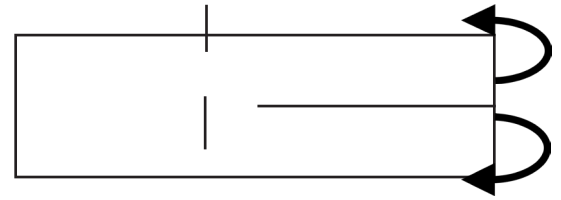
## STEP 3

Measure the 8cm from the bottom of your rectangle and draw a line that is 2cm long. Do this on both sides. Cut on those lines.



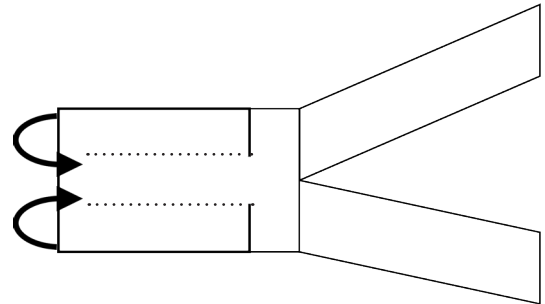
## STEP 4

Fold the top flaps in opposite directions.



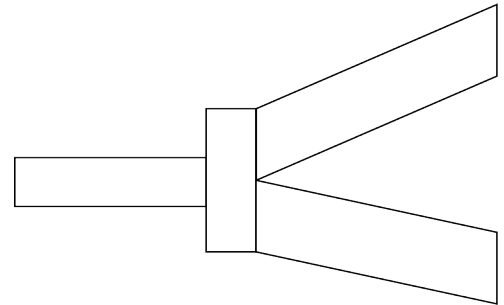
## STEP 5

Fold the bottom flaps towards the middle



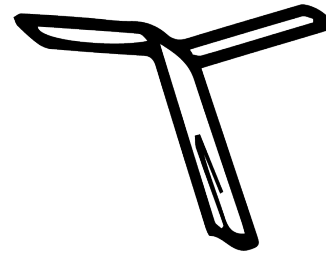
## STEP 6

Decorate your helicopter with markers or pencils crayons.



## STEP 7

Attach a paperclip to the bottom and throw it in the air, watch what happens.

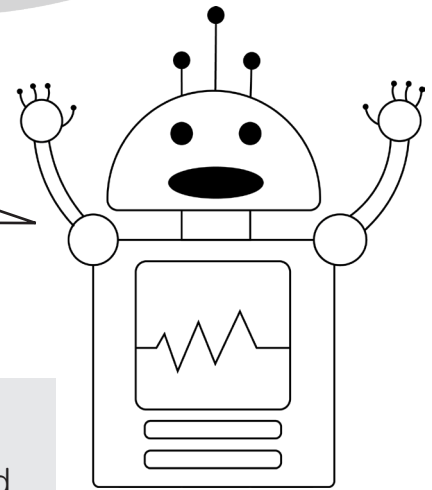


**Fun Fact:** The paper spins in the air because, as it falls, the wings are pushed up at an angle by the air. With the wings at a slanted position, the air above one wing pushes down and the air below the other pushes it up.

**Now:** try changing your helicopter and watch how it those changes change the way it falls. For example, put more paper clips on the bottom, make the paper shorter, longer, wider, thinner...etc. See if you can find a way to make the helicopter fall faster or slower.

# Build a Boat

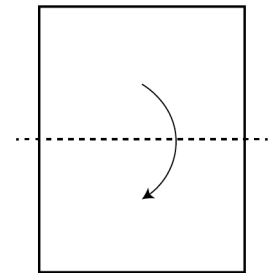
More instructions? Yay! Isn't following instruction the most fun thing to do? Well I guess it's all I can do... But I love it!



Follow the instructions below to build your own boat. The only materials you will need are: a piece of paper, and some markers or pencil crayons.

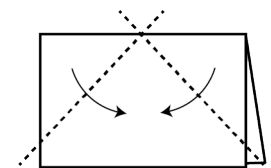
## STEP 1

Fold the paper in half.



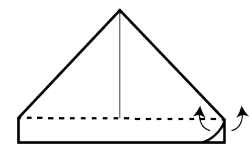
## STEP 2

Fold the corners to the center.



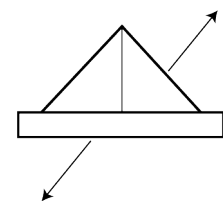
## STEP 3

Fold up the bottom flaps on both sides.



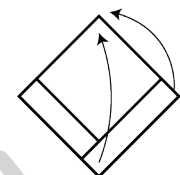
## STEP 4

Pull the bottom out and push the sides together.



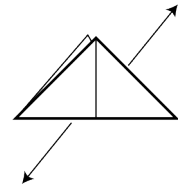
## STEP 5

Fold the front and back sides up



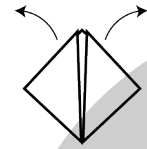
## STEP 6

Pull the bottom and and push the sides together (like step 4).



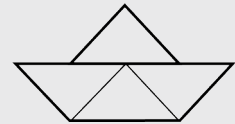
## STEP 7

Pull apart the sides.



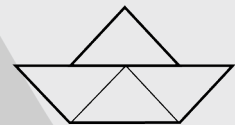
## STEP 8

Make sure the boat is open on the bottom.

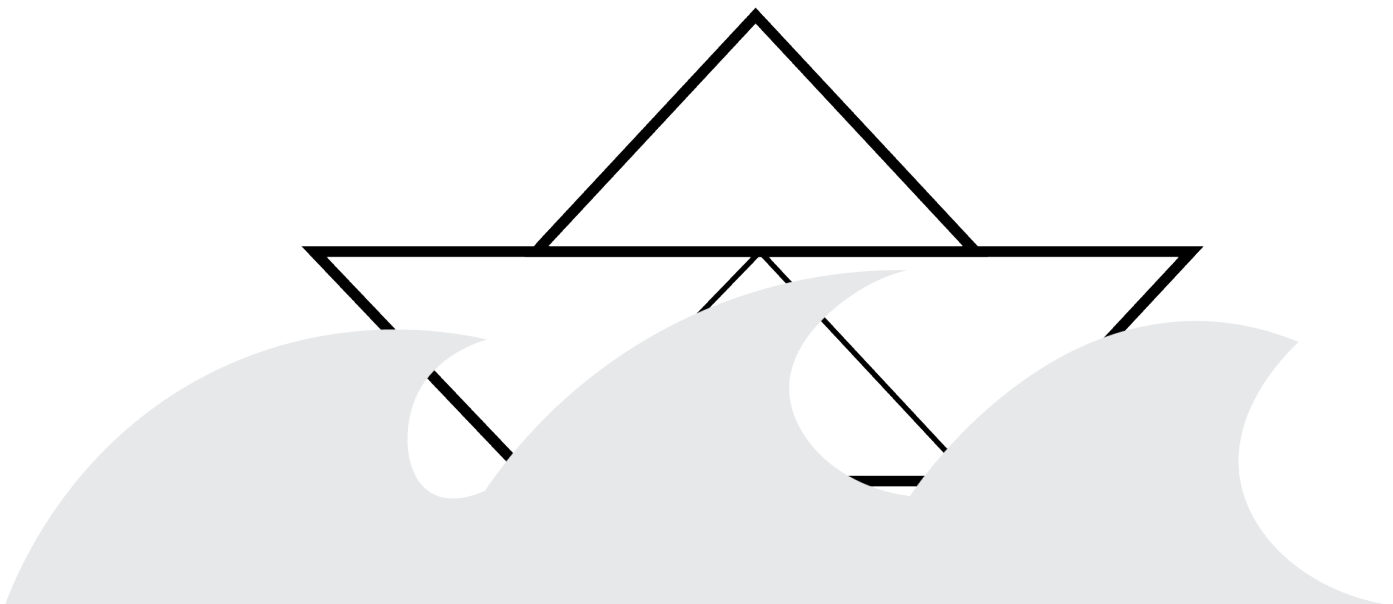


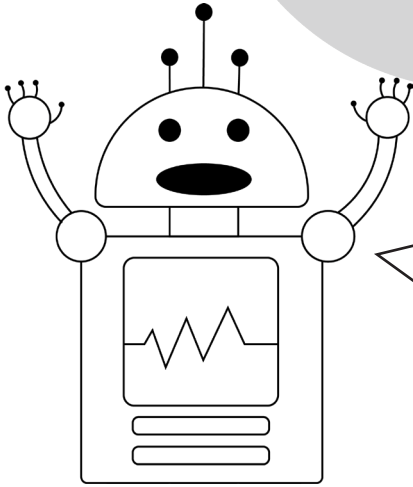
## STEP 9

Decorate your boat.



**Fun Fact:** Sailboats move using the same forces as the wings on planes! The sails on top and the keel on the bottom generate a 'lift' force that help the boat move forward!





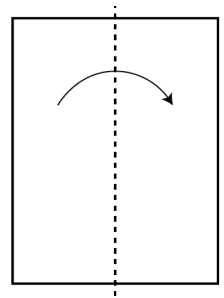
# Build a Airplane

Wow isn't it exciting all of the things you can make with instructions! My instructions, called 'code', let me do so many things too!

Follow the instructions below to build your own airplane.  
The only materials you will need are: a piece of paper, and some markers or pencil crayons.

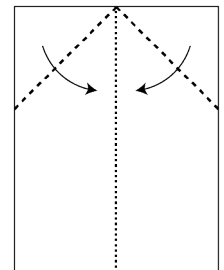
## STEP 1

Fold the paper in half. Then unfold it.



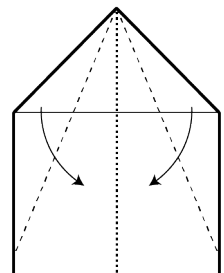
## STEP 2

Fold the top corners to the center line you just made.



## STEP 3

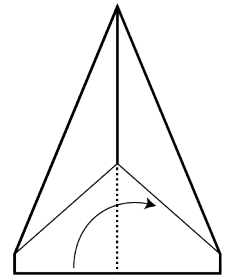
Fold the top edges to the center line.





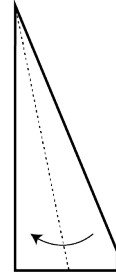
## STEP 4

Fold it in half again.



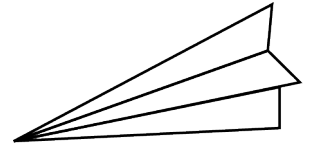
## STEP 5

Fold the free ends of the paper to meet the bottom of the paper



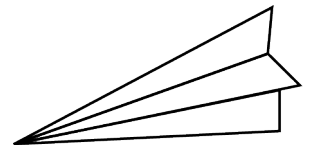
## STEP 6

Decorate your airplane using your pencil crayons or markers.



## STEP 7

Throw your airplane and watch it fly.



### Tips and Tricks:

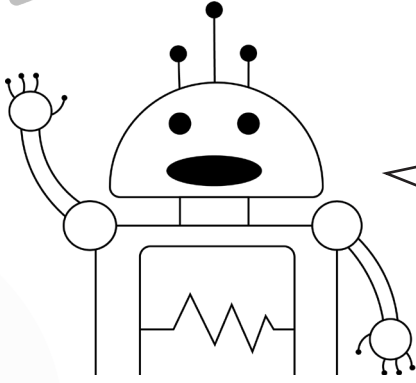
- Make sure all of your fold lines are crisp and tight! This makes sure that the airplane stays together and keeps its shape.
- Make sure the point of your airplane is sharp.
- When throwing your plane, angle your hand upward to make the plane fly higher while keeping it level to the ground : this will make it go further.

**Now:** Try changing the way you throw your paper airplane and see how that affects how far it goes. Do you know a different design for paper airplanes that you think will go even further?

# Healthy Earth

You're really good at sorting things! Do you think you could help me sort these things into what is good for your planet and what is not?

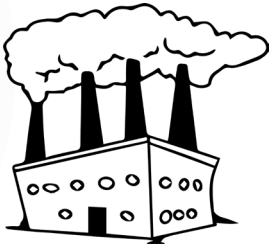
Draw a line from each drawing on the left to the healthy earth if it is good for our planet and environment or the unhealthy earth if it is not.



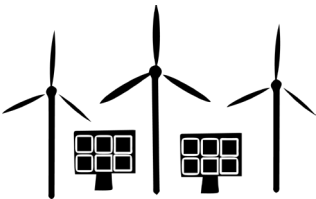
Plant a tree



Factories



Clean Energy



Recycling



Littering



Healthy Earth



Unhealthy Earth

# Answer Keys

## Decode the Animals (page 4 + 5)

- |         |          |                |              |            |          |
|---------|----------|----------------|--------------|------------|----------|
| 1. lamb | 2. sheep | 3. caterpillar | 4. butterfly | 5. tadpole | 6. frog  |
| 7. pup  | 8. shark | 9. chick       | 10. chicken  | 11. cygnet | 12. swan |

## Sorting Food (page 8 + 9)

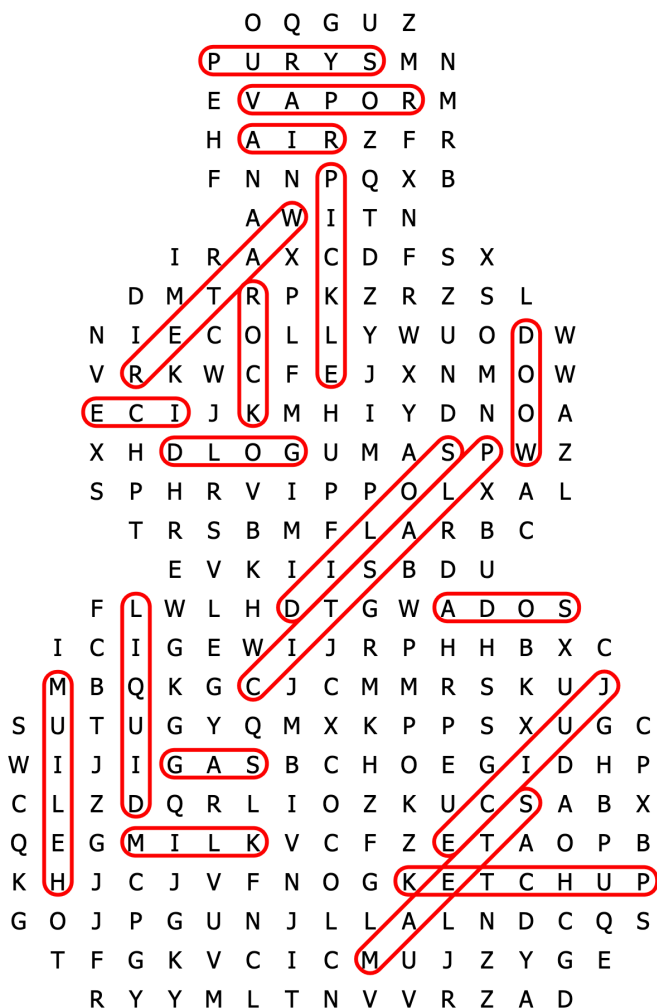
Fruit + Vegetables : avacado, broccoli, carrot, lettuce, strawberry, watermelon

Grains : bread, cereal, pasta

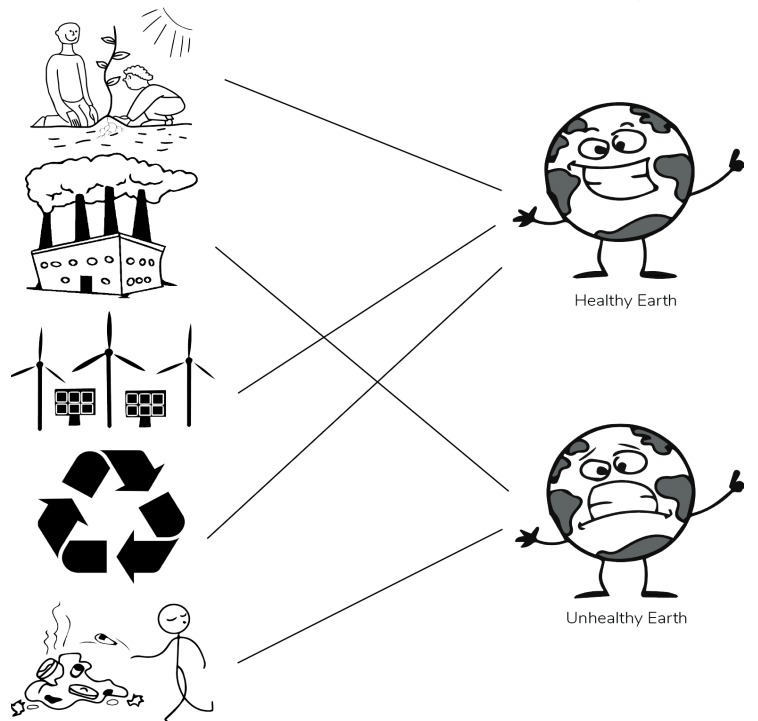
Milk and derivatives : cheese, milk, yougurt

Fats, Oils and Sweets : chocolate, donut, lolipop

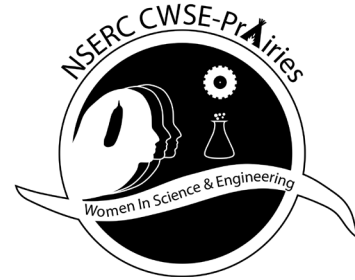
## State of Matter Word Search (page 7)



## Healthy Earth (page 18)



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