

Grade 6 Activities for Exhibit Exploration

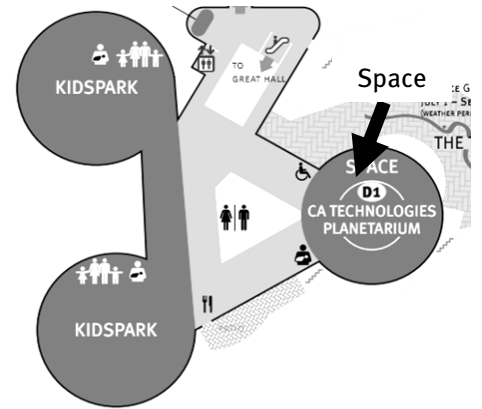
This worksheet will help guide you as you investigate our exhibits.

Time to Complete: 1 hour

SPACE HALL (ENTRANCE): Level 4

A. SPACE

1. Find the **space shuttle model** outside of the Space exhibit hall.



- a. Look closely at the robotic arm of the Space Shuttle, called Canadarm. Can you find a joint that looks like the shoulder of a human arm? An elbow? A wrist? Draw the Canadarm and label the joints in the space provided below.

Draw the Canadarm above and label the joints.

- b. What do YOU think the robot arm can be used for?

2. Find the **Rocket Chair**. It glides on a friction-free cushion of air. The effect is like moving in space—once you start in a particular direction, nothing slows you down. Try the chair yourself, or observe someone for two minutes.

a. Why is it important for a space-walking astronaut to be attached with a line to the spacecraft?

b. To make the rocket chair move forward, in what direction should the air jets blow?



3. Find the model of the **Earth, Moon and Sun**.

Count the number of times the moon circles the Earth over the period of one year. Record your answer below:



THE LIVING EARTH: Level 6

B. BIODIVERSITY

4. Find the exhibit that deals with **frog calls**.

a. Which frog call sounds like the plucking of a rubber band? _____

b. Which frog call sounds like the rubbing of a wet balloon? _____

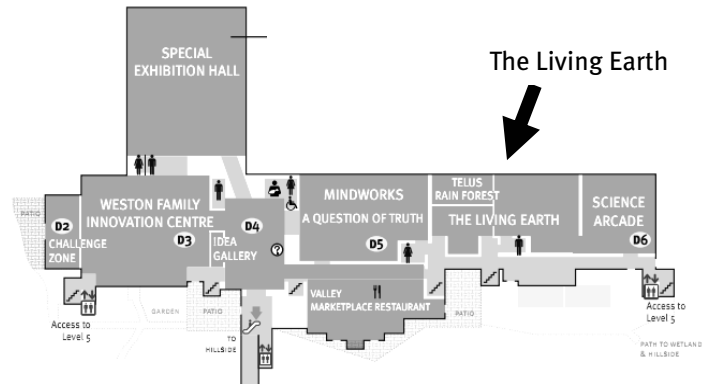
c. Have you heard any of these calls before? List them below:

d. Can you mimic any of the calls? Choose one and start croaking!

My frog _____

Can your friend identify which frog you are trying to imitate?

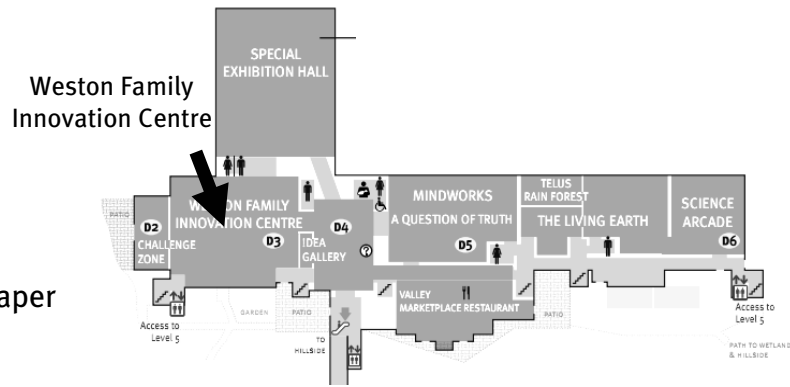
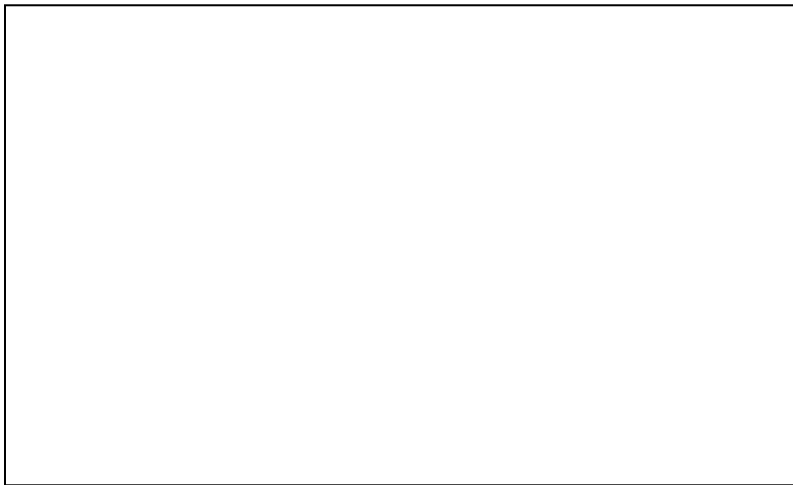
My friend's guess _____



WESTON FAMILY INNOVATION CENTRE: Level 6

C. FLIGHT

5. Find the **Paper Airplane Challenge**. Build a paper airplane of your own design, or using the instructions in the exhibit.
 - a. Draw and describe its flight (e.g. flew in a curve, flew two metres and then crashed on the ground).



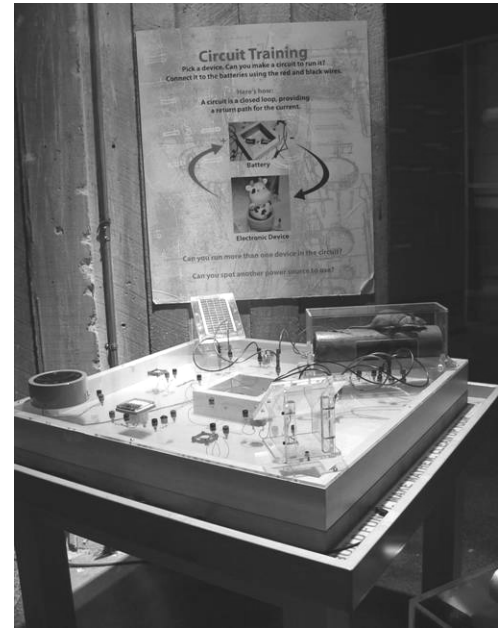
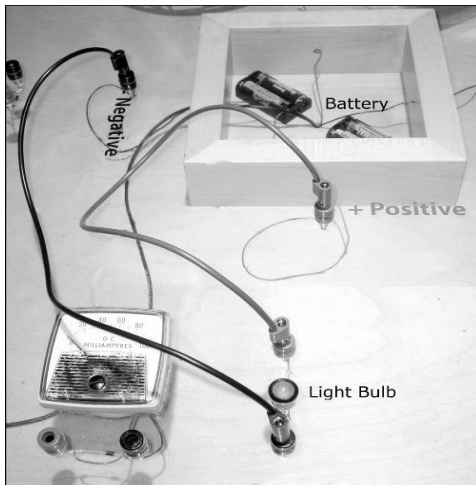
- b. Redesign your airplane. What changes did you make to your plane?
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- c. Were the changes an improvement over the first design? Why or why not?
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WESTON FAMILY INNOVATION CENTRE: Level 6

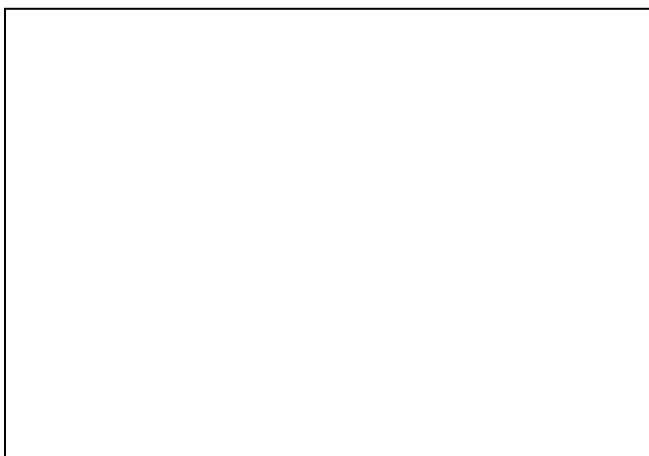
D. ELECTRICITY AND ELECTRICAL DEVICES

6. Find the **Circuit Training** exhibit. Use the wires provided and try to connect the circuit as it is shown.

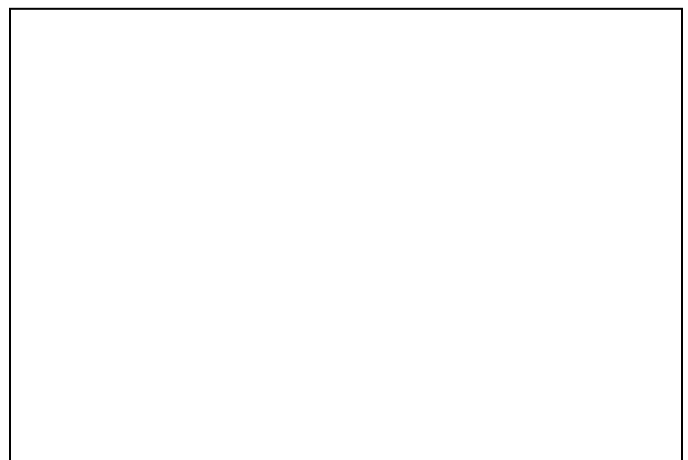


- a. What colour does the bulb light up once it's connected? _____
 - b. What is the source of electricity in this circuit? _____
 - c. Use the voltmeter to find out the voltage of this source. _____ V
 - d. How can you increase the voltage?
(Hint: What other form of energy can be harnessed and transformed into electrical energy?)
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e. Can you power up the following items? Sketch your circuits.



Spinning Fan



Illuminated Rat

FOLLOW UP (to do after your trip)

SPACE

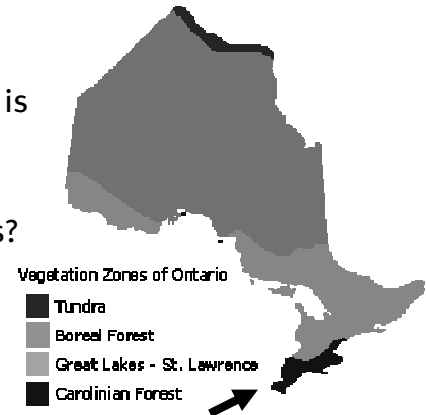
Research NASA's *New Horizons* spacecraft.

- Where is it expected to be in 2015?
- Describe one thing that planetary scientists are hoping to learn more about through this mission. If you need some ideas, check out this website: <http://pluto.jhuapl.edu/overview/whyGo.php>
- What Solar System object gave *New Horizons* a gravity assist on its journey?
- Check the NASA website: can you find out where it is right now?

THE LIVING EARTH

The Carolinian Zone occupies only about one percent of Canada's land area, but it is considered to be very important. It is located in a small part of Southern Ontario, indicated by the arrow.

- In terms of biodiversity, how does it compare with other vegetation zones?
- What are some threats to the Carolinian Zone? What do you think we should do to protect it?
- The Government of Canada's Species at Risk act helps to protect vulnerable species. The Short-eared Owl has been placed in the category "special concern". What are species of Special Concern?
- The Karner Blue butterfly is extirpated from Ontario. What does this term mean?



WESTON FAMILY INNOVATION CENTRE

In 2010, students from the University of Toronto made history with their human powered ornithopter, named *Snowbird*.

- What exactly is an ornithopter?
- What animals would behave similarly to an ornithopter?
- Did the *Snowbird* ornithopter become airborne with any help from a machine? Why do you think this might be?