

Pathway B

Names of students in your group: _____

Organise your time in the exhibition:

- Spend the first 20 minutes of your time having a good look at all the exhibits.
- Spend the next 30 minutes visiting the exhibits and answering the questions below.
- Spend the last 10 minutes checking out any exhibits that you missed.

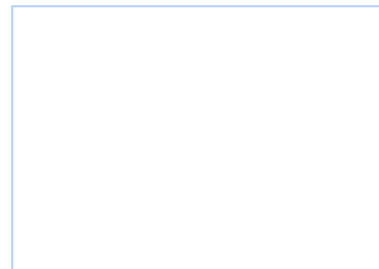
Please note:

- It's best to work in small groups.
- Visit the exhibits and answer the questions below in any order.
- Try to avoid crowding – if an exhibit already has a group visiting it, go to another one!
- Note: teachers may divide questions between groups, with answers are shared back at school—eg. Group 1 does Questions 1-5, Group 2 does Questions 6-10, etc.

1. Find and operate the **Hover Table**.

Inertia is the resistance an object has to a change in its state of motion.

Draw the disc with the greatest inertia:



2. Find and operate the **Whisper Dishes** with a friend.

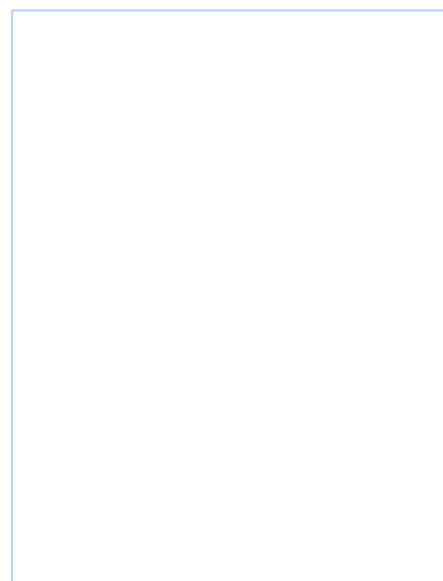
The Whisper Dishes are shaped so that the sound waves of the person speaking are directed to the person listening.

What shape are the Whisper Dishes? _____

3. Find and operate the **Bernoulli Blower**.

Draw a picture of what is happening in this exhibit.

Use arrows to show the direction of the air.



4. Find and operate the **Cycloid**.

Describe the path that has the fastest ball: _____

Why do you think this path is the fastest? _____

5. Find and operate the **Tubular Resonance** exhibit.

What happens when the frequency of the sound changes? _____

Draw and label groupings of beads produced by a low frequency sound and by a high frequency sound.

Frequency in hertz: _____ Hz

Frequency in hertz: _____ Hz

6. Visit the **Vortex** info-pod, and find and operate the **Whirlpool Vortex**.

(i) What part of a vortex spins fastest? _____

(ii) Where do vortices occur in nature? (Think of moving water and weather)

7. Find and operate the **Eddy Currents** exhibit.

Friction between the fluid and the container creates eddies in this exhibit. Where in the container did most eddies form? _____

To create eddies, it was best to rotate the container quickly slowly

8. Find and operate the **Gravity Well**.

(i) When a ball is rolling into the Gravity Well, where is it moving fastest?

- At the edge of the Gravity Well
- Half way down the Gravity Well
- Near the centre of the Gravity Well

(ii) Relate your observations to the orbits of the planets in the Solar System.

Which planet has the shortest orbit and is the fastest moving? _____

Which planet has the longest orbit and is the slowest moving? _____

9. Go to the **Collection Cases**.

Describe one of the models displayed: _____

When was the model made? _____

10. Go to the **School Robot Display**.

Spend a few minutes checking out the robots and animatronic models produced by local schools.

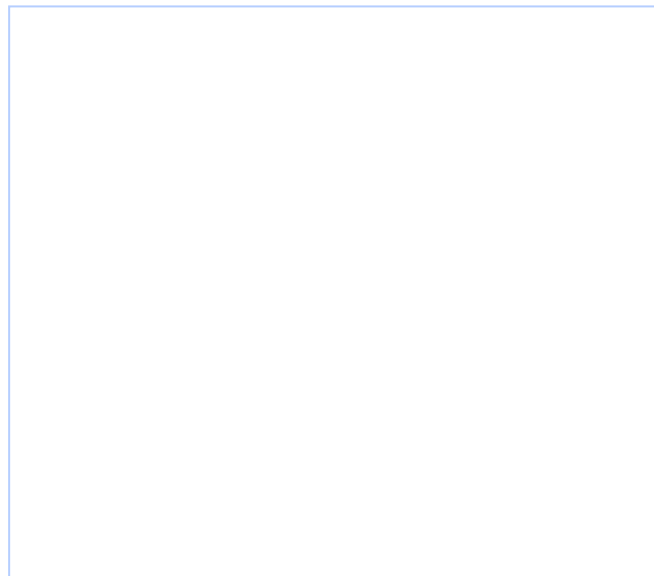
11. Find and operate the giant **Guitar String**.

Pull the rope repeatedly in a slow rhythm so that the rope makes just one wave maximum. Increase your rhythm to make 2, 3, 4 wave maxima.

How many wave maxima were you able to create in the rope? _____

12. Find and operate the **Lissajou Figures**.

Draw one of the patterns it makes.



13. Find **Mission Control**.

Watch a DVD showing the launch of the Space Shuttle and views of the Earth from space.

14. Find and operate the **EX-1 Rocket** exhibit.

Explain briefly how this rocket works: _____

15. Find and operate the **Lightning Tube**.

The Lightning Tube works when an e _____ current is passed through the tube. This makes the g _____ (neon, krypton, xenon) in the tube glow.



16. Find and operate the **Pulse Rocket**.

Magnets are used to launch this rocket.

Opposite poles attract repel, so the rocket is pushed away from the launch pad and then lands gently.

17. Find the **Chaotic Pendulum**.

What causes the motion of this pendulum to be chaotic? _____

18. Find the **Honda Hybrid Car**.

This car uses only about one third of the petrol that a normal car uses.

What features enable the car to be so fuel efficient? _____

19. Find and operate the **Robot BUZZ**.

Give yourself a tick when you make Buzz move in a 'Figure 8' pattern.