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ONTARIO **SCIENCE** CENTRE



Exhibit Inquiry

The Night Sky

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Grade SK - 3



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Exhibit Inquiry

The Night Sky

Have students look for the following exhibits related to the night sky during their visit to the Ontario Science Centre:

Orbits

Where to go:

Space (Level 4)
Earth, Moon, Sun



What it's about:

This exhibit shows the moon orbiting around the Earth as the Earth orbits the Sun. This is an accurate model of the orbits and rotations of these celestial objects. Sizes and distances are not to scale.

What to say and do:

- Watch the Earth spinning in the model. How long does it take the Earth to spin once in real life? (*24 hours*)
- Can we feel the Earth spinning? (*No*) Ask students to think of some reasons why we cannot feel the Earth spinning. (*The Earth spins steadily and moves at a constant rate in its orbit around the sun. Humans, the atmosphere, skyscrapers and everything else spin along with the Earth at the same constant speed.*) Discuss what it feels like to ride in a car or fly in an airplane. If you keep your eyes closed, you cannot feel any motion as long as the ride is smooth.
- Watch the Moon. How many times does the Earth spin during the time it takes the Moon to complete one orbit? (*Approximately 28 times.*) How often does the Moon orbit during the time it takes the Earth to complete one orbit around the Sun? (*Approximately 12-13 times.*)
- Watch closely and you will see eclipses. What happens during a solar eclipse? (*The Moon passes between the Earth and the Sun casting a shadow on the Earth.*) What happens during a lunar eclipse? (*The Moon passes into the shadow of the Earth.*)

Black Hole

Where to go:

Space (Level 4)
Black Hole



What it's about:

Press a button to release up to 5 metal balls at a time into the funnel. Watch as they roll down. This exhibit simulates how an object would fall into a black hole. Though that particular concept is a bit complex, students (and adults!) love to watch the metal balls rolling. This exhibit also shows more simple ideas – such as the closer something gets to the centre, the faster it goes. This relates back to the solar system model, where the inner planets have faster cycles around the Sun than the outer planets.

What to say and do:

- Watch the metal balls roll into the funnel. Which balls go faster? Slower? (*The balls closer to the hole in the funnel go faster.*)
- Is each ball's cycle exactly the same each time? (*e.g. No, the path it follows gets slightly smaller each time.*)
- What will eventually happen to the ball? (*It will fall into the hole in the funnel.*)



Solar System Orrery

Where to go:

Space Hall (Level 4)



What it's about:

This exhibit allows students to watch the planets of our solar system orbit around the Sun. Each planet follows its own cycle, some shorter, some longer. One cycle of Earth around the Sun is about 365 days, or one year.

What to say and do:

- How many different cycles can you count in this exhibit? (*Each planet has its own cycle.*)
- Where are the cycles shorter? Longer? (*The planets nearer the middle have faster cycles; the planets farther out have longer cycles.*)
- The big thing in the centre of the model is the Sun. Where is our planet Earth? (*The 3rd planet out.*) How does Earth's cycle compare to some of the other planet cycles? (*e.g. in the middle – not as fast as the 2 inner planets, not as slow as the outer planets.*)
- How many things can you think of that happen in one Earth cycle around the Sun? (*e.g. My birthday, Hallowe'en and other holidays, 12 months, 365 days, spring, summer, fall, winter, etc.*)

What do you see in the Stars?

Where to go:

KidSpark (Level 4)



What it's about:

This exhibit allows students to experience a nocturnal environment. Stepping into the space, it looks as if nothing is going on, until you pay more attention. Look up and see the stars. Shining a light onto the ceiling reveals the outlines of constellations in the sky. Shine the light on the wall to see pairs of eyes belonging to nocturnal animals.

What to say and do:

- When you first came in, could you see anything? (*Not really – it takes a while for our eyes to adjust to the dark.*)
- Can you think of any creature that spends its time outside at night? (*e.g. raccoons, owls and bats.*)
- Look up in the sky. Try to connect the dots to find pictures in the stars called constellations. Can you find any animal shapes in the constellations? (*e.g. a snake, a giraffe, a bear, etc.*)
- What happens in the sky that allows us to see the nighttime sky? (*The Sun appears to set as Earth spins and points us away from the Sun.*)

Resources

The Night Sky

Vocabulary

Constellation	A group of stars forming a distinctive pattern; sometimes named for characters or animals from ancient myths.
Cycle	A sequence of events that is repeated again and again.
Daily	Occurring every day.
Day	The time it takes the Earth to complete one full rotation on its axis.
Earth	The planet on which we live; the third planet from the Sun.
Lunar eclipse	The passage of the Moon into the Earth's shadow.
Month	One of the twelve divisions into which the year is divided; each month is roughly based on the time required for the Moon to orbit Earth once.
Myth	An ancient story often explaining how and why the world came to be the way it is.
Orbit	The path that an object in space follows around a larger object.
Phase	The apparent shapes of the Moon (<i>e.g. full, crescent</i>).
Planetarium	A darkened room in which images of stars, planets, etc. are projected onto the ceiling.
Solar eclipse	The passage of the Moon in front of the Sun so that all or part of the Sun appears to be covered.
Star	A large ball of gas in space that produces its own light and heat.
The Sun	Nearest star to Earth; it provides Earth and the other planets in our solar system with heat and light.

Internet Links

Astronomy for Kids

<http://www.kidsastronomy.com/astroskymap/>

PLEASE NOTE: Programs and exhibits are subject to change without notice.