



Deadly Moons

Through art and science, children learn about moons of our solar system.

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AGE

6 - 12



LEVEL

Primary



TIME

1h



GROUP

Group



SUPERVISED

Yes



COST PER STUDENT

High Cost



LOCATION

Small Indoor Setting (e.g. classroom)



CONTENT AREA FOCUS

Astronomy



ASTRONOMY CATEGORIES

Planetary systems



CORE SKILLS

Asking questions, Communicating information



TYPE(S) OF LEARNING ACTIVITY

Structured-inquiry learning, Creative Expression, Fine Art focussed, Fun activity



KEYWORDS

Drawing, Space, Moons, Solar System, Art



SUMMARY



GOALS

Through creative engagement of art and science to learn about the natural satellites in our solar system.



LEARNING OBJECTIVES

- To identify the different characteristics of moons in the Solar System.
- To be able to explain one or more moons in detail through drawing and verbal description.
- To distinguish the role of Earth's moon from other moons in the Solar System.



EVALUATION

Create a quiz using an online quiz maker or app such as Socrative <https://itunes.apple.com/au/app/teacher-clicker-socrative/id477620120?mt=8>:

- How many moons does the Earth have?
- Which moon matches with which planet? (Multiple choice)
- For each moon, describe its defining feature.
- What is the name of the line between day and night on the Moon?

Discuss the following questions with students:

- Did you have fun with Deadly Moons?
- What is your 'deadliest moon'?
- Why do you like it?
- Did you learn something new about the Moon?
- What do you see when you look at the Moon at night?
- Many of the other moons in the Solar System are named after characters in myths and legends. If you could, what would you name our Moon?
- What is the most surprising thing you learned in this workshop?



MATERIALS

- Black paper
 - White paper
 - Soft pastels
 - Crayons
 - Felt-tip pens
 - Paint Brushes
 - Pencils
 - PowerPoint slide show
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BACKGROUND INFORMATION

Lunar Phases

Full Moon:

The Moon is said to be full when the Sun shines on it, lighting up the half that we can see. When the Moon is full, it is halfway through its monthly orbit of the Earth. This moon often appears a rich yellow when it is full and sits low in the sky. This colour is due to the fact that we look at it through the thicker, dustier part of the atmosphere that is close to the ground.

Waxing Crescent:

The black area is the night on the Moon, where the Sun is not shining. The brighter area is the day on the Moon, where the Sun is reflecting brightly off its surface. The line on the Moon between the night and the day is called 'The Terminator', like the movie of the same name. The bright area, just visible on the edge of the dark limb, is called 'earthshine'. The Sun shines on the Earth and that light bounces off of the Earth's oceans and lights up some of the darkness on the Moon.

First Quarter:

The Moon looks like this when it is one-quarter of the way around the Earth in its monthly orbit. We see a quarter of it lit up from our place on Earth, but half of the Moon is lit up by the Sun shining on the Moon's surface. In the northern hemisphere the first quarter looks like a growing "D", while in the southern hemisphere it looks like a "C".

Last Quarter:

The Moon is three-quarters of the way around the Earth when it looks like this. In the northern hemisphere the last quarter looks like a "C", while in the southern hemisphere looks like a "D".

Waning Crescent:

The Moon has travelled almost all the way around Earth during the month when it looks like this. At this point, it is almost a New Moon. When it is a New Moon, we see no light shining on it at all. The Sun's light is shining only on the far side of the Moon during a New Moon, so we cannot see the Moon at all from Earth.

Other Moons of our Solar System:

Saturn has many moons. Enceladus, one of Saturn's moons, is one of the most beautiful moons in the Solar System. It has an ocean under its surface that is made of very, very cold water. Every now and then, this water explodes out of the southern half of this moon. The water shoots out of slits in its icy surface, and is shot hundreds of kilometres out into space. Hyperion, another one of Saturn's moons, is very strange indeed. Most moons go around their planet in a nice, smooth path, but Hyperion tumbles around Saturn. Titan, Saturn's largest moon, has an atmosphere made of methane and ethane.

Europa:

One of Jupiter's moons, is an interesting ice moon. It has a smooth icy surface that is covered in lines. The surface is full of fractured ice sections and is very unusual. Under Europa's surface is a cold ocean. Sometime in the future, a spacecraft may land on this moon, drill a hole in the surface and put in a submarine to see if there is anything living within it. Io is another one of Jupiter's moons. Some people think that it looks a bit like a pizza, but actually, the marks we see are caused by active volcanoes. Io's volcanoes can spray sulphur and sulphur dioxide hundreds of kilometres above its surface. What goes up then falls back down, creating huge circular red, yellow, white and black bruises on its surface. Callisto, another of Jupiter's moons, is very beautiful. Callisto is one of four of Jupiter's moons that we can see through a small telescope. It was first discovered by Galileo in 1610.

Phobos:

Phobos is the largest and closest of the two natural satellites of Mars. It is so close that it orbits Mars faster than Mars rotates. As a result, from the surface of Mars it appears to rise in the west, move across the sky in 4 hours 15 min or less, and set in the east, twice each Martian day. Phobos is named after the Greek god Phobos, a son of Ares (Mars) and Aphrodite (Venus) which was the personification of Horror.



FULL ACTIVITY DESCRIPTION



Preparation

Download the slideshow of the Moon in the preferred format (jpg, pdf or ppt) from under 'Attachments' in the right hand column.

Activity

Step 1

Open the Deadly Moons presentation. Ask students if they have ever seen the Moon in the night sky. How many moons does the Earth have? Do other planets in the solar system have moons?

Step 2

Spend just a minute or two on each slide (depending on the group's age) and relay the related scientific information. Keep explanations brief and encourage the group to be vocal from the start. For each moon, ask students to describe what the moon looks like. E.g. Phobos looks like a potato. For Europa: What do you think it would be like to live in a cold, icy ocean?

Step 3

At the end of the slideshow, ask the students to vote for their favourite moon.

Step 4

Repeat the slideshow using a vocal voting system. Ask the kids to give a big 'Yay!' for the moons they like and a 'Boo' for the ones they don't like.

Step 5

Tell the students that they will be drawing the most popular moon(s). Help them study their choice in further detail. Remind them to note its shape, colour and texture.

Step 6

If the students need a visual reminder, invite them to tell you which moon they want to see again by name or by a relevant detail. 'Do you want to see the volcanic moon? Is it one of the moons that has a cold, icy ocean under its surface?'

Step 7

Give the students pastels for drawing on black paper (messy but effective), crayons on white paper, felt pens or watercolours.

Step 8

For each moon, ask students to show the class their Deadly Moons to the class.

Step 9

See the evaluation for suggested questions. It is not vital that they recall and understand absolutely everything, but they will go away knowing that (A) there are many moons around different planets in our Solar System and (B) these moons are different shapes and sizes.

Follow-up (optional):

Display the moons created through the activity as "Deadly Moons" exhibition at the school so that other students can enjoy and learn.



CURRICULUM

Country | Level | Subject | Exam Board | Section

- | - | - | -

UK | KS2: Year 5 | Science | - | Earth and Space- Movement of the Moon

UK | KS2 | Art and Design | - |



ADDITIONAL INFORMATION

Moon phases from northern hemisphere, southern hemisphere and equator:

<http://ilovemedias.es/proyectos/moon-phases/>

Moons of Our Solar System:

<http://solarsystem.nasa.gov/planets/profile.cfm?Display=Moons>



CONCLUSION

Deadly Moons activity explores creativity side of students to learn more about the moons of the solar system. This combination of art and science engage the students to express their imagination more vividly and learn from others.

ATTACHMENTS

- [Images zip file](#)
- [Images PDF](#)
- [Images PPT](#)

ALL ATTACHMENTS

[All attachments](#)

CITATION

Kelleghan, D., 2014, *Deadly Moons*, [astroEDU](#), doi:10.11588/astroedu.2014.2.81335
