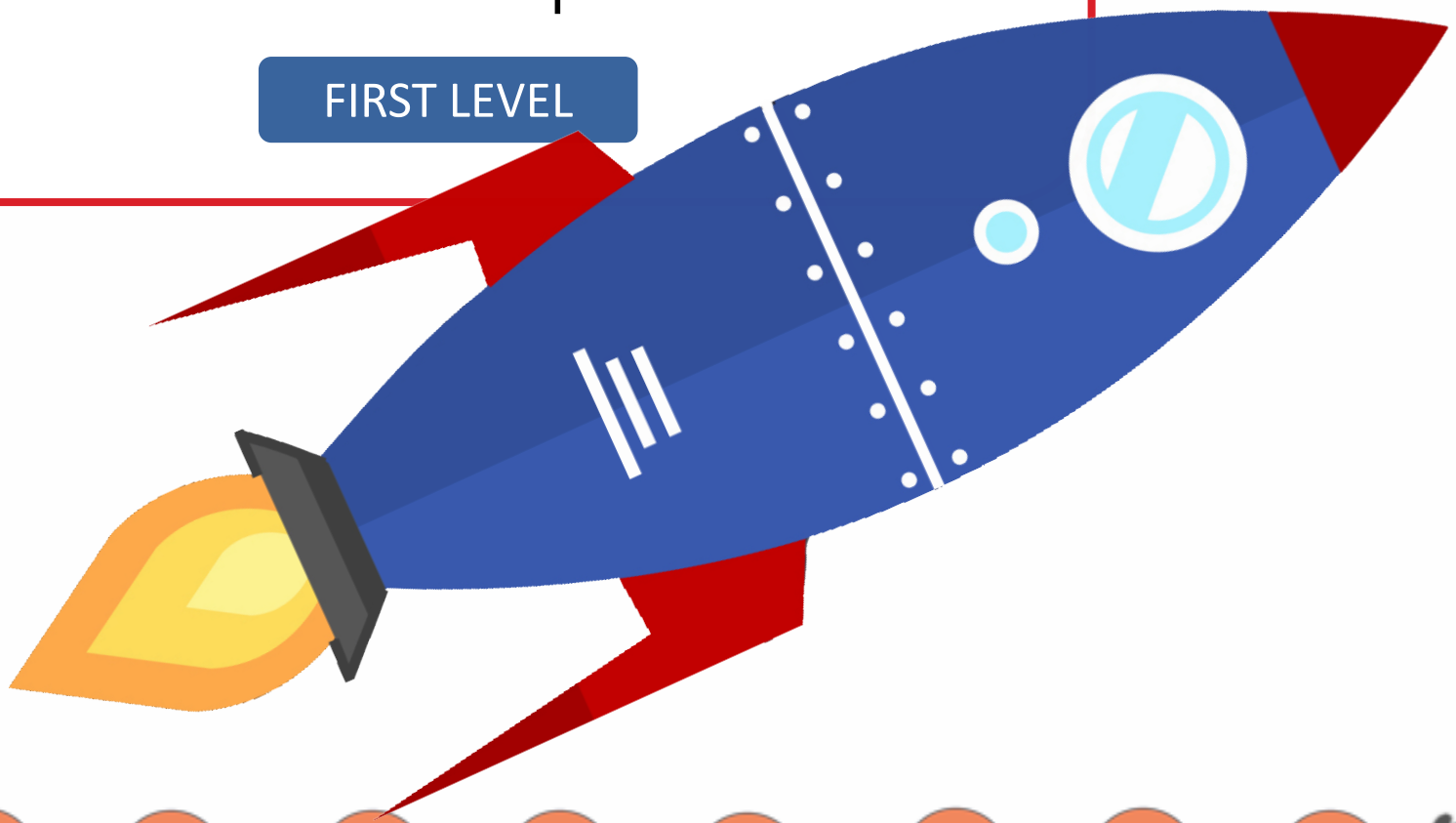
Discovering Space

Science Topic

FIRST LEVEL



CONTENTS

BLURB

Let's explore space. Find out about how we view space from planet Earth. Learn about the sun and how it impacts our planet. Discover the phases of the moon. Find out about stars and galaxies and discover what is on the surface of the sun and the moon. Learn about space exploration and discovery.

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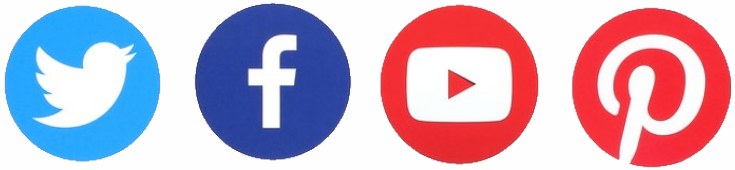


OUTCOMES

TOPIC OR THEME	LEVEL	CURRICULUM AREA	TEACHERS
DISCOVERING SPACE	1st	Science	

CURRICULUM FOR EXCELLENCE OUTCOMES

ART AND DESIGN

I can create a range of visual information through observing and recording from my experiences across the curriculum.
EXA 1-04a

HEALTH AND WELLBEING

I make full use of and value the opportunities I am given to improve an manage my learning and, in turn, I can help to encourage learning and confidence in others.
HWB 1-11a
I value the opportunities I am given to make friends and be part of a group in a range of situations.
HWB 1-14a
Through taking part in a variety of events and activities, I am learning to recognise my own skills and abilities as well as those of others.
HWB 1-19a

HEALTH AND WELLBEING

I can describe some of the kinds of work that people do and I am finding out about the wider world of work.
HWB 1-20a

LITERACY

When I engage with others, I know when and how to listen, when to talk, how much to say, when to ask questions and how to respond with respect.
LIT 1-02a

As I listen or watch, I am learning to make notes under given headings and use these to understand what I have listened to or watched and create new texts.
LIT 1-05a

When listening and talking with others for different purposes, I can exchange information, experiences, explanations, ideas and opinions, and clarify points by asking questions or by asking others to say more.
LIT 1-09a

I am learning to make notes under given headings and use them to understand information, explore ideas and problems and create new texts.
LIT 1-15a

To show my understanding across different areas of learning, I can identify and consider the purpose and main ideas of a text.
LIT 1-16a

I can present my writing in a way that will make it legible and attractive for my reader, combining words, images and other features.
LIT 1-24a

SCIENCE

By safely observing and recording the sun and moon at various times, I can describe their patterns of movement and changes over time. I can relate these to the length of a day, a month and a year.

SCN 1-06a

I have contributed to discussions of current scientific news items to help develop my awareness of science.

SCN 1-20a

TECHNOLOGIES

As I extend and enhance my knowledge of features of various types of software including those which help find, organise manage and access information, I can apply what I learn in different situations.

TCH 1-03a

I can access, retrieve and use information from electronic sources to support, enrich or extend learning in different contexts.

TCH 1-03b

I explore and experiment with the features and functions of computer technology and I can use what I learn to support and enhance my learning in different contexts.

TCH 1-04a

I can create, capture and manipulate sounds, text and images to communicate experiences, ideas and information in creative and engaging ways.

TCH 1-04b

PURPOSE	ACTIVITIES	CRITERIA	EVIDENCE
• I am learning about the definition of space. • I am finding out about planet Earth and how it moves. • I am discovering the other planets in the solar system. • I am exploring the relationship between the sun and Earth. • I am finding out about the different phases of the moon. • I am learning that we use telescopes to explore space from Earth. • I am learning about the features of the sun. • I am finding out more about moon. • I am learning about the age, position and composition of stars. • I am learning about space exploration. • I am finding out about astronauts and astronomers. • I am learning about the International Space Station. • I am learning about satellites. • I am learning to speak clearly when reporting my findings.	1. Complete a worksheet on space. 2. Draw different phases of the moon. 3. Use movement to show the relationship between the earth, moon and sun. 4. Complete a worksheet on space. 5. Draw and compare the night sky with the sky during the day. 6. Research and report on the first moon landing.	• I can explain what space is. • I can talk about planet Earth in relation to the sun and the moon. • I can describe how the sun gives us light. • I can explain how the sun impacts day and night. • I can talk about the different phases of the moon. • I can explain the features of the sun. • I can explain the features of the moon. • I can describe stars. • I can talk about space exploration. • I can carry out research using the internet. • I can report back on research. • I can participate in group lessons with my classmates.	**MAKE** Draw different phases of the moon. Draw the night sky and day sky. **SAY** Discuss the topic as part of various tasks. Report findings from research. Talk about the relationship between the sun, Earth and moon. **DO** Use movement to show the relationship between the sun, Earth and moon. Carry out research. Compare and contrast day and night. **WRITE** Complete worksheets space.

Discovering Space – Introductory Lesson

The purpose of this lesson is to get an idea of what the children already know about the subject. It is a co-operative lesson for the whole class to get involved. Spelling and handwriting are not important.

At the end of the topic it will be useful to re-visit the results of this lesson and hold a class Q&A to discuss what they have found out and any unanswered questions they still have. The Q&A could be part of an ICT lesson where the children research their unanswered questions.

SPLIT THE GROUPS

In order to get randomly selected groups ask the children to sort themselves into height order without talking to each other. Then split the children into groups of 4 i.e. the first 4 children are one group etc.

Once in their groups the following jobs should be randomly allocated:

1. Group Leader (who likes science?)
2. Writer (who has a spring birthday?)
3. Reporter (who has the shortest name?)
4. Timer (who is wearing green?)

Sheets of A2 paper are laid out on the desks each sheet should be labelled with one of these titles:

1. Planet Earth
2. Sun, Moon, Stars

Then split the sheet into two columns:

1. What do I know?
2. What do I want to find out?

The groups then rotate around each sheet. A time limit should be given.

PART ONE

Planet Earth

Planet Earth
TEACHER'S NOTES

In this section we are going to find out about planet Earth. We are going to learn about the impact of the sun, moon and stars on life on planet Earth.

WHAT IS A PLANET?

A planet is a large object that orbits a star. The word planet comes from the Greek word *planetes* which means 'wanderers' or 'things that move'.

WHAT IS SPACE? – Space is the empty area outside the Earth's atmosphere where the planets, stars and moons are.

WHAT IS PLANET EARTH?

We live on planet Earth. We also call planet Earth the world. Earth is shaped like a sphere and is constantly turning. Earth orbits the sun. The surface of the planet consists of land and water. You can use tools like a globe, Google Earth, a wall map or an atlas to explore the planet.

ROTATION OF THE EARTH

Planet Earth is constantly rotating. The only way we notice the rotation happening is the change from night into day. It takes 24 hours for the earth to complete one rotation.

WHAT IS GRAVITY?

Gravity is a force that keeps us stuck to earth. If we jump up gravity pulls us back down to the ground. If we didn't have gravity we would float away.

WHAT DOES ORBIT MEAN?

An orbit is the path an object takes as it travels around a star.

ORBITAL PERIOD

An orbital period is the amount of time it takes for an object to orbit around another object.

All of the planets in the solar system orbit the sun. The orbital period for earth to travel around the sun is one year.

These are the planets of our solar system. They all orbit the sun.

CLOSEST TO THE SUN → FURTHEST FROM THE SUN

MERCURY	VENUS	EARTH	MARS	JUPITER	SATURN	URANUS	NEPTUNE

THE SUN AND PLANET EARTH

In this section we are going to find out how the sun affects life on planet Earth.

DAY

In the daytime the area of Earth where we live is facing the sun. Light from the sun allows us to see our surroundings.

NIGHT

At night, the area of Earth where we live is not facing the sun. The lack of light from the sun means we are in darkness.

WHAT IS EARTH'S AXIS?

Earth's axis is an imaginary line that travels from the north pole to the south pole. Earth's axis is tilted at around 23 degrees, this tilt gives us seasons. During summer, the earth is tilted towards the sun which gives us longer days and in winter the earth is tilted away from the sun which gives us longer nights.

SUNSET

As we move from day to night we see the sun disappear over the horizon, this is called sunset.

SUNRISE

As we move from night to day we see the sun appear over the horizon – this is called sunrise.

THE MOON AND PLANET EARTH

The moon is the Earth's largest satellite, it is called a satellite because it orbits the Earth. The moon does not emit any light of its own, but it does reflect light from the sun, this is why we can see the moon.

LUNAR MONTH

A lunar month is the amount of time it takes for the moon to orbit the Earth. A lunar month is just over four weeks long and is measured from new moon to new moon.

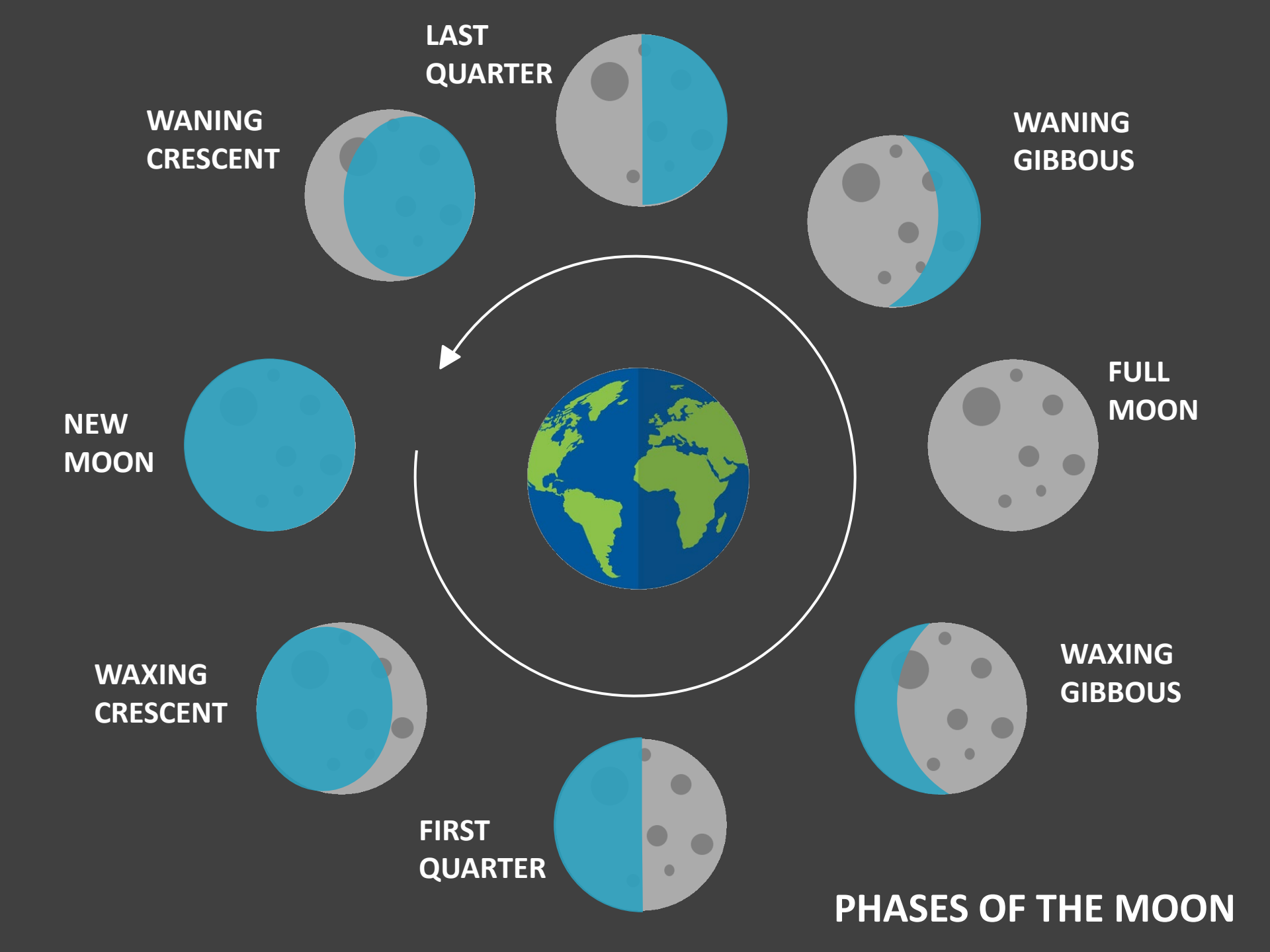
PHASES OF THE MOON

As the moon completes its orbit of Earth certain parts become visible to us. The part of the moon that you can see can vary depending on where on Earth you are standing. On the next page there is a graphic that shows the phases of the moon.

EXPLORING SPACE FROM PLANET EARTH

TELESCOPE

Scientists use powerful telescopes to explore space from planet Earth. Telescopes allow us to investigate space without travelling there. We can examine the sun, moon, stars and other planets.


LAST
QUARTER
WANING
CRESCENT
WANING
GIBBOUS
NEW
MOON
FULL
MOON
WAXING
CRESCENT
WAXING
GIBBOUS
FIRST
QUARTER
PHASES OF THE MOON

Planet Earth
ACTIVITY 1

Can you complete this space worksheet?

Read each sentence and write true or false in the box.	
You can see the stars in the sky at night time.	
Neptune, Mars and Venus are all planets.	
It takes one week for the Earth to orbit the sun.	
It takes one year for the Earth to orbit the sun.	
The moon never moves.	
Light from the sun helps us see at night.	

Can you unscramble these water words?	
tlnpae	
bitro	
narlu	
vitgrya	
xisa	

WHAT IS PLANET EARTH?

We live on planet _____. We also call planet Earth the _____. Earth is shaped like a _____ and is always _____. Earth _____ the sun. The _____ of the planet consists of land and water. You can use tools like a _____, Google Earth or an atlas to _____ the planet.

MISSING WORDS	
world	turning
explore	surface
sphere	Earth
orbits	globe

Planet Earth
ACTIVITY 1 - ANSWERS

Can you complete this space worksheet?

Read each sentence and write true or false in the box.	
You can see the stars in the sky at night time.	T
Neptune, Mars and Venus are all planets.	T
It takes one week for the Earth to orbit the sun.	F
It takes one year for the Earth to orbit the sun.	T
The moon never moves.	F
Light from the sun helps us see at night.	F

Can you unscramble these water words?	
tlnpae	planet
bitro	orbit
narlu	lunar
vitgrya	gravity
xisa	axis

WHAT IS PLANET EARTH?

We live on planet Earth. We also call planet Earth the world. Earth is shaped like a sphere and is always turning. Earth orbits the sun. The surface of the planet consists of land and water. You can use tools like a globe, Google Earth or an atlas to explore the planet.

MISSING WORDS	
world	turning
explore	surface
sphere	Earth
orbits	globe

Planet Earth
ACTIVITY 2

Can you draw these phases of the moon?

We can see different parts of the moon at different times during the lunar month. Draw which part of the moon you would see during these phases.

FULL MOON	**CRESCENT MOON**	**QUARTER MOON**

Planet Earth
ACTIVITY 3

THINGS TO REMEMBER	One earth rotation is equal to one day.	One earth orbit of the sun is equal to one year.	One moon orbit of the earth is equal to one lunar month.

Can you show movements of the Earth and moon?

The purpose of this activity is to show the movements of the Earth around the sun and the moon around the Earth.

Organise yourselves into groups of four using MAKE A WORD.

Allocate these jobs.

1. The person with a jumper on is the **team leader**.
2. The person with the longest hair is the **sun**.
3. The person with a watch on is the **earth**.
4. The person who is having a packed lunch is the **moon.**

INSTRUCTIONS

1. Make signs that say SUN, EARTH and MOON.
2. The people who have been selected for these part should take a sign.
3. SUN – stand in a spot with lots of space.
4. EARTH – take five paces away from the sun and stand face to face.
5. MOON – take one pace away from the EARTH.
6. SUN – stand still during the activity.
7. EARTH – turn around on the spot to show one day.
8. EARTH – now move around the sun while still turning.
9. MOON – move around EARTH to show a lunar orbit.
10. The SUN should be still and the EARTH and MOON should be moving.
11. Take a video of this activity.
12. Tweet us your video @LittleMooseEd

TEAM LEADER	SUN	EARTH	MOON
Keeps everyone on task.	Plays the part of the sun.	Plays the part of the Earth.	Plays the part of the moon.

ACTIVITY HINTS AND TIPS

ACTIVITY 1
Reading

CO-OPERATIVE LEARNING
The children could work in pairs or as a class to complete this task and encourage discussion about the topic.

EXTENSION TASK
The children could make their own true or false statements to test their classmates.

The children could write a forces quiz to test their classmates.

ACTIVITY 2
Reading / Art

CO-OPERATIVE LEARNING
The children could work with partners for this task.

NOTE
The children have been asked to draw the simple shapes rather than correctly identifying waxing/waning etc.

EXTENSION TASK
The children take a look at the moon at night (if it is visible) and draw a picture or write a description to discuss in class.

ACTIVITY 3
Problem Solving

NOTE
It might take a few tries to get this right but it is a valuable way of showing the children the relationship between the sun, the earth and the moon.

EXTENSION TASK
The children could recreate the activity using a lamp for the sun, a globe and a ball for the moon.

They could discuss how well they worked as a group and any improvements they would make.

MAKE A WORD

To make matching easier you could mark the pieces 1-4 so the children know if they have the first, second, third or fourth piece.

ME	RC	U	RY	MERCURY
V	E	N	US	VENUS
E	AR	T	H	EARTH
M	A	R	S	MARS
JU	PI	TE	R	JUPITER
S	AT	UR	N	SATURN
U	RA	N	US	URANUS
NE	PT	UN	E	NEPTUNE

Assessment 1

By completing these tasks your teacher can see how much you have learned about planet Earth. You can look back in your jotter to help you answer the questions.

Answer these questions in sentences.

1. How long does it take for the Earth to complete one rotation?
2. The moon orbits the sun. TRUE or FALSE?
3. Apart from Earth, name one planet in the solar system.
4. The sun gives us light to see in daytime. TRUE or FALSE?
5. The moon is a satellite. TRUE or FALSE?
6. Which of these is NOT a phase of the moon – crescent, full or blue?
7. We get less sun in winter and more sun in summer. TRUE or FALSE?
8. What comes first in the phases of the moon – new moon or full moon?
9. Which is larger, the sun or the moon?
10. Can you see stars at night or during the day?

Write a paragraph explaining what Earth does in a day and in a year.

Draw a picture of Earth, the moon and the sun.

Assessment 1 - ANSWERS

1. How long does it take for the Earth to complete one rotation?
2. The moon orbits the sun. TRUE or FALSE?
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9. Which is larger, the sun or the moon?
10. Can you see stars at night or during the day?

1. One day.
2. FALSE, it orbits the Earth.
3. See Teacher's Notes.
4. TRUE.
5. TRUE.
6. Blue.
7. TRUE.
8. New moon.
9. The sun.
10. At night.

Extension Tasks 1

These are internet based tasks for early finishers. They can be done on an iPad or a computer.

Use Google Images to find pictures of these planets.

Mercury	Jupiter
Venus	Saturn
Earth	Uranus
Mars	Neptune

FIND THE UNDERLINED WORDS IN THE WORD SEARCH

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

Find an online news story about space.

VISIT OUR SPACE BOARD ON PINTEREST.

Look online to find pictures of the moon in these phases.

waxing crescent	last quarter
full moon	waning gibbous

You should NEVER look directly at the sun. The bright light can damage your eyes. Talk about this with your class.

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