

Title: All about Tides, Tidal Treats baking cookies and Drama of Tidal Tales		
Date:	Class Level: 4th – 6th Class	Subject: Geography
Strand: Natural Environments	Strand Unit: The Earth, Moon (and Seashore)	
<p>Objective: The aim of the lesson plan is for the children to develop their geography skills and learn about how the moon and sun's influences the tides on the seashore. This is supported by cross curricular activities including baking cookies, a fieldtrip to the seashore, gravity games and creating a drama play about the seashore ecosystem and animals.</p>		
<p>Developing Skills: • Geographic skills: • Questioning • Observing • Predicting • Investigating • Estimating and measuring • Recording and communicating • Analysing • Evaluating</p>		
<p>Introduction / Discussion: Discussion: Discuss with the children what they know about tides. Find out: What do they know, What do they want to know, What have they learned about the effects of tides on the seashore. Create a word chart with the children discussing the seashore.</p> <ul style="list-style-type: none"> Identify words that relate to tides, that the children are familiar with using a coloured marker. Introduce new words to explain the different types of tides. Add the new words that the children are not familiar with to the word chart in a different colour. 		
<p>Discussion and Investigations - learning the tides: Discuss with the children how the ocean goes up and down each day creating what tides. As part of the activities below investigate why and how ocean tides occur. Introduce fun facts about tides, as well as understanding tide tables the flow of tides. Bake some tidal retreat cookies and learn about the best time to go the seashore. You may like to take the cookies to the seashore for a snack.</p> <p>POWERPOINT RESOURCE: Explorers Explaining the tides to children presentation has some useful illustrations of how the moon and sun's gravity effects the Earth and ocean – creating tides. There are also a lot of short animations online for children explaining the effects of the moon and sun has on the Earth and the changing tides. Depending on the age of the children you may decide explaining the basics of tides and safety on the seashore.</p> <p>ACTIVITY:</p> <ol style="list-style-type: none"> Worksheet and Activity Learning about the rise and fall of Tides <ul style="list-style-type: none"> Learn about the effects of the moon and sun has on the Earth. Learn how this has an effect on the ocean causing different types of tides at different times of the month. Learning about the Tides - A Fun Tidal Quiz <ul style="list-style-type: none"> Investigate some fun facts about tides Learning about Tidal Flows and Baking Tidal Retreat cookies <ul style="list-style-type: none"> Learn about tide times and tide tables highlighting the importance of understanding high and low tides Bake some cookies to learn the rule of 12ths and the flow of tides and when is the best time to go to the seashore. Drama Time - Telling Tales of Tides and the extremes of the seashore <ul style="list-style-type: none"> Observe, investigate and record the effects the tides have on the seashore environment. Highlight how there is a diversity of animals that have to adapt under extreme conditions that live on the seashore. Creating a drama piece, highlighting the tales of the tides and the extreme conditions of the changing tides that animals live in – every day. <p>Fieldtrip - Questioning, Estimating and Measuring Approach: While at the seashore, remind the children of how the sun and moon affects the ocean causing tides. Try some gravitational games and activities:</p> <p>Testing Gravity: Using a bucket at water and a strong arm, spin the bucket of water upside down to show the relation between motion and gravity. Ask the questions: What happens to the water while they are spinning around? Why? What will happen when you stop spinning the bucket? Discuss with the children the theory that when the bucket turns upside down, the water should spill out as gravity pulls it downwards. If spinning fast enough, the water is going in a straight line, counteracting the pull of gravity. This wedges the water in the bucket, stopping it from spilling out. This is referred to as 'artificial gravity'.</p> <p>Watch the Tides: As you head towards the lower shore to explore rockpools and the inter-tidal zone area, put some bright coloured markers on the shore from the upper shore in equal distances apart. It is always useful to have an indicator on the shore to show</p>		



when the tide has turned and the tidal flow is coming back in. This enables children to understand the concept of tides in a practical and real environment, by keeping an eye on the tide and markers - and staying safe!

Observe, Record and Communicate the Effects of Tides:

Observe the different zones and discuss the tides effect on the different areas:

- The **splash zone** is above the high tide mark. Salt water only splashes into it at very high tides and storms.
- The **intertidal zone** is made up of the **upper, middle and lower shore** which is home to many diverse species that have to survive out of the water during the changing tides.
- The **subtidal zone** is uncovered by water during extremely low tides.

Talk and Discussion:

- Discuss with the children the activities they enjoyed. Take photos and share with friends. Create additional games and a quiz for to test the family on their knowledge about tides.
- Please share with us on social media and tag #ExplorersEducationProgramme

Resources:

- Online access to investigate the local weather and tides • Worksheet and Activity sheets • Ingredients for baking cookies
- Sensible clothing for the beach for changeable weather, spare clothing, fresh water, bucket and a small seashore guide, camera / phone • Paper and markers

Assessment:

Children: KWL chart (What I know, What I want to know, What I learned) • Observation and questioning: Mind Mapping – colour code what children know / new concepts • Examine learning outcomes before and after e.g. knowledge, understanding, skills • Evaluation: Reflect on learning experiences that lead to the outcomes e.g. attitudes, enjoyment, as well as motivation to learn about the subject.

Linkage and Integration:

Visual Arts – creative drawing creating awareness of line, shape, form; colour, introduce textiles • Geography – Weather observation • Geography and Science – Environmental Care • English – writing stories / poems • Science – Living things • Science – Forces.