**Material World Unit - What’s it made of?**

|  |  |
| --- | --- |
| **Early Stage 1** | **Timing: 8 weeks/ 1 hour per week** |
| **Knowledge and Understanding Outcomes** | **Skills Outcomes** |
| STe-9ME – identifies that objects are made of materials that have observable properties.STe-10ME – Recognises how familiar products, places and spaces are made to suit their purpose. | Ste1-4WS – explores their immediate surroundings by questioning, observing using their senses and communicating to share their observations and ideasSte1-5WT – uses a simple design process to produce solutions with identified purposes |
| **Content – Key Ideas** | **Values and Attitudes Outcomes** |
| Objects are made of materials that have observable properties.Products, places and spaces in the immediate environment are made to suit their purpose.**Skills – Key Ideas**Scientific – Students question, predict, plan and conduct investigations, process and analyse data/information and communicateTechnological - Students explore and define a task, develop ideas and produce solutions, and evaluate. | Ste1-1VA – shows interest in and enthusiasm for science and technology, responding to their curiosity, questions and perceived needs, wants and opportunitiesSte1-2VA – demonstrates a willingness to engage responsibly with local, national and global issues relevant to their lives, and to shaping sustainable futuresSte1-3VA – develops informed attitudes about the current and future use and influence of science and technology based on reason |
| **Vocabulary**  | **Learning Support** |
| Material, object, wood, glass, plastic, wool, fabric, metal, paper, waterproof, hard, soft, bends, stiff, smooth, rough, heavy, light. | ***Students with learning difficulties******Gifted and talented students*** |
| **Assessment** | **Learning across the Curriculum** |
|  | Aboriginal and Torres Strait Islander histories and cultures Asia and Australia’s engagement with Asia Sustainability Critical and creative thinking Ethical understanding Information and communication technology ability Intercultural understanding Literacy Numeracy Personal and social capability Civics and citizenship Difference and diversity Work and enterprise  |
| **Quality Teaching Framework** |
| ***Intellectual Quality***Deep KnowledgeDeep UnderstandingProblematic KnowledgeHigher-Order ThinkingMetalanguageSubstantive Communication | ***Quality Learning Environment***Explicit Quality CriteriaEngagementHigh expectationsSocial SupportStudents’ self-regulationStudent direction | ***Significance***Background KnowledgeCultural KnowledgeKnowledge IntegrationInclusivityConnectednessNarrative |

**Lesson 1 – Mind on Maps**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Content | Teaching and Learning Activities | Resources | Notes and Register |
| STe-10MESTe-4WS | Products, places and spaces in the immediate environment are made to suit their purpose.Making predictions resulting from their questionsExploring and making observations by using their senses to gather information about objects and events in their immediate surroundings | A School Walk* Introduce a map to the class and ask questions such as: What is a map? Have you used a map or seen one being used? What sort of things are on a map?
* Explain that the class will go for a walk around the school and make a map of what they see. Explain that the class will develop a picture map of the school. (A picture map is a pictorial representation of locations and distances and includes labels, arrows or lines to connect places)
* Ask students to predict what they might see in the school environment by closing eyes and visualising what they would see. Provide reasons. Records predictions and reasons in class journal/board.
* Walk around the school, stopping to briefly identify things and ask students to discuss what they are used for. Eg. seats. Take photos of each location/object for next session.
* Ask students to describe what they see and feel, eg. a wall is bumpy, a seat is smooth
* Return to classroom and review predictions and reasons, tick the things that students saw. In another colour add other things they saw.
* Discuss what students know now that they didn’t know before.
* Introduce Word Wall and record descriptive words from class observations.
 | CameraNewsprint book/journalFlashcards for word wall | Assessment:* Individual predictions before walk around school
* Individual observations while on walk

Learning Across the Curriculum:        |

**Lesson 2 - Mind on maps**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Content | Teaching and Learning Activities | Resources | Notes and Register |
| STe-10MESTe-4WS | Products, places and spaces in the immediate environment are made to suit their purpose.Organising objects or images of objects to display data and/or information | Let’s make a map* Review information from the class walk, things observed and described.
* Ask students where they started, what they saw and where they finished. Individual students can add to the sequence of things that were seen on the school walk.
* Explain that students are going to help make a class picture map of their school walk. Use a dotted line to represent the walking line and ask students to add pictures of each thing observed on the walk. Label each item.
* Optional: Use interactive whiteboard to create picture map.
* Students draw their own picture map in workbook, and include three items they saw.
* Recap descriptions and add to word wall.
 | * Chart paper to make map

 OR* Computer and whiteboard
* photos
 |  |

**Lesson 3 – Object Observers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Content | Teaching and Learning Activities | Resources | Notes and Register |
| STe-9ME | Objects are made of materials that have observable properties. | * Ask students to recall the names of things they observed on their school walk. Introduce the term “object” to students and explain that scientists sometimes use this word instead of “thing”. Record the term “object” on word wall and invite students to suggest images or samples of different objects.
* Explain that students will go for another walk around the school to explore the objects they observed and the materials they are made of.
* Present a class example as a model before the walk and ask questions:
	+ What is the object?
	+ What is the object made of?
	+ Can you describe the object?
	+ Can you describe the material the object is made of?
	+ Can you find something made of the same type of material?
	+ What part of our bodies do we use to find out about objects and materials?
* Introduce an enlarged copy of “Tell me about it” (Resource sheet 1) and use student responses to model how to draw the object and record answers on the resource sheet.
* Explain that students will be working in teams to find out what an object on the class map is made from. Each team chooses an object from the map to observe and completes the “Tell me about it” sheet.

Each team shares their findings with the class. | “Tell me about it” (Resource sheet 1) picture map from previous lesson |  |

**Lesson 4 – The Name Game**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Content | Teaching and Learning Activities | Resources | Notes and Register |
| STe-9ME | Objects are made of materials that have observable properties. | * Review previous learning.
* Introduce feely box and explain that there are hidden objects inside which students will feel and describe to the class. (explain that you have selected things that are safe to touch)
* Take a familiar object, like a pencil, and ask students what they might say to describe the pencil if it was in the box. Ask:
	+ How does this object feel?
	+ What shape is this object?
	+ How are the ends of this object the same or different?
	+ What do you think this object is made of?
	+ What is the objects name?
* Model using the feely box emphasising descriptive language eg. “The object is hard and doesn’t bend, it’s heavy and feels smooth.” Ask students what material the object is made of and predict the object. Reveal object and ask students if their prediction matched the object.
* Repeat process with students taking turns to describe objects in the feely box. (This may take several sessions so that all students get a turn) Offer ideas for descriptive language if necessary, eg. is it hard or soft?
* Display contents of feely box and discuss how objects can be made from more than one material, eg. spoons can me made from metal, plastic or wood. Ask students reasons why the same object would be made of different materials.
* Sort objects from the feely box according to the materials they are made from. Label and display each group in the classroom.
* Discuss words used during the lesson and ask:
	+ What words did we use to describe objects?
	+ Which words didn’t we know the meaning of?
	+ Which words should we add to the word wall?
 | * Feely bag/box
* Objects for Feely bag, eg. spoon, pencil, ruler, small ball, small soft toy, dice, plastic cup, small paper plate,
 |  |

**Lesson 5 - Making Sense of Materials**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Content | Teaching and Learning Activities | Resources | Notes and Register |
| STe-9ME | Objects are made of materials that have observable properties. | Session 1 Making books* Review what students have learned about objects and the materials they are made of. Discuss how we know what materials objects are made from – properties of materials. Devise a test for materials – eg metal – use a magnet (discuss not all metals are magnetic eg gold and aluminium {non ferrous metals}), feels cold, is hard. Plastic – hard, can get wet. Paper – can’t get wet, can draw on it. Get students to suggest 3 or 4 criteria for each material and break into groups.
* In groups use test criteria to determine what materials things are made from. Attach labels.
* Share what has been learned by making a class book using Resource sheet 3 – “What’s it made of?”
* Teacher models first page, then each student completes a page to contribute to the book (or wall display).
* Students share their completed work with the class.

Session 2 Silly Stories* Review previous lesson.
* Introduce silly stories written on board or in class science journal. Read a sentence to class and ask students to identify objects and the materials they are made of.
* Re-read each story and ask students to identify the “silly” material in the story and suggest reasons why people don’t make that object using that material.
* Discuss why people need to think carefully about choosing the right material when making an object.
* Students may draw an object made from a “silly” material and then the same object made from a suitable material.

Students share their drawings and give reasons for suitable material. | Materials labelsMagnetsWater testing facility – eg tote trayResource sheet 3 – What’s it made of?Prepared “Silly Stories” eg. I got in my car made of jelly and drove down the road made of wool. | Assessment:Reasons for choice of suitable material |

**Lesson 6 - Waterproof wonders**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Content | Teaching and Learning Activities | Resources | Notes and Register |
| STe-9ME | Objects are made of materials that have observable properties. | **Testing things*** Review previous lessons, identifying materials and choice of materials for objects in the school environment.
* Ask: What happens to different materials when they get wet? Think about different ways things can get wet (rain, sprinkler, dew, spilling drinks)
* Ask: How can we find out what happens when materials get wet? Lead discussion about how to test materials and observe what happens to them,
* Present four materials to test (popsticks, white crepe paper, writing paper and plastic) Display a sample with a label and description of each in journal/board.
* Explain how students will first observe (by looking and touching) and describe items while they are dry. Discuss why all items are cut to the same size – would it be fair if items were different sizes?
* Place materials in a small tray and ask students to pour water slowly over materials until they are just covered with water. Model how to observe materials after they are wet and describe them again.
* Ask students to discuss their findings and provide reasons for each result. Record in table form
* Why are some materials more water resistant than others?
 | Small tray/ice cream containersPopstickWhite crepe paper 6x6cmWriting paper 6x6cmPlastic 6x6cm |  |

**Lesson 7 – Waterproof Wonders**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Content | Teaching and Learning Activities | Resources | Notes and Register |
| STe-10ME | Products, places and spaces in the immediate environment are made to suit their purpose. | **Using Things*** Review previous session and investigation of materials when they got wet. Discuss why it is important to know what happens to things when they get wet.
* Refer to class picture and ask what would happen if playground equipment was made of crepe paper and got wet when it rained.
* Explain that students will make an object for the school environment which will be placed outside and will need to be water resistant.
* Provide time for students to select materials and construct their object.
* Share objects with the class – describe object, what it is made of and why those materials were selected.
* Optional: Take photos of each object and encourage students to write a caption about their object and how they made it.
 | * Class picture map
* Materials/odds and ends eg. cellophane, popsticks, paper, card, wire, staples, containers, string, pegs, etc.

Note: Important to have waterproof and non-waterproof materials so choice of materials can be assessed | Assessment:Student selection of materials and reason for selections eg. waterproof, water resistant |

**Lesson 8 - Location, Location!**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Content | Teaching and Learning Activities | Resources | Notes and Register |
| STe-9MESTe-10ME | Objects are made of materials that have observable properties.Products, places and spaces in the immediate environment are made to suit their purpose. | * Review class picture map and recall objects in the school environment.
* Review types of objects that students constructed in previous lesson and discuss where these objects might be placed in school environment based on the materials they are made of.
* Students select a place on the class picture map for the object they made, giving consideration to the materials they used. Share with the class giving reasons. Place a coloured dot sticker (with students initials on it)on the class picture map for each object
* Elicit students understanding about objects, materials and purpose by asking questions, such as:
	+ What is your object?
	+ What material is you object made of?
	+ What can you tell us about the materials you used?
	+ Why did you choose this material and not ….?
* Summarise learning and record in Science journal/word wall
	+ What activity did you enjoy? Why?
	+ What new things have you learnt?
	+ What are you still wondering about?
 | * Class picture map
* Coloured dot stickers

Objects made in previous lesson |  |