**Will your Boat Float?**

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| **Unit Title: Will your boat float?** | **Year Level: Year 2** | **Duration of Lessons: 40 minutes** | **Design and Technology Curriculum** |
| **Lesson** | **Teaching Sequence** | **Resources** | **Teacher Notes** |
| Lesson 1 | Engage students in the lesson by reading “Who sank the boat” by Pamela Allen. As a class discuss what happens in the book. Did the boat float? What materials do you think the boat was made out of? How did the boat move?  Introduce the design task to students.  “Year two students - the prep class need your help! They are having a boat race but they need your help to design and create a boat.  Your boat needs to be a colourful working masterpiece that the prep students will love.  As a class, discuss what might their boat need to look like and need? Colourful, flag, sail, to move, to float etc  Introduce students to a PowerPoint which explores different types of boats. Encourage students to identify the different characteristics of each boat. What makes them different? Why does this one move faster? Students will explore different uses of boats and the different activities they are useful for.  As a whole class, ask students to brainstorm and share why some products can move faster or different to others. Explain to students the use of materials, the size, shape of a boat will affect the way it moves.  Students will be asked to consider their ideas for the boat design. What design elements are you going to include? How will your boat float and move?  Choosing from one of the boats display in the PowerPoint you are going to complete the first step in your design challenge. You are to choose one of the boats cut it out and glue it into the first page of your technology booklet. Ask students to discuss with their partner why they chose that boat to help with their design ideas. Why do you think this style or type of boat would be most suitable for the task? | -Book: Who Sank the Boat by Pamela Allen  -PowerPoint displaying different boats  -Interactive Whiteboard  -Technology Booklet – Let’s make a boat that floats  Glue  Scissors  Boat Images Printout | Differentiation:  -Ensure a variety learning styles are present.  -Employ teaching and behaviour strategies to ensure students remain engaged and listening  -Provide explicit instructions where necessary to confirm understanding  -Assist ESL and students with literacy and learning difficulties  -Provide extra support when needed by displaying examples on the board  -Discuss with students why materials and features may change a way something moves.  Teacher Roles:  -Ensure students remain engaged and included within the lesson and discussions  - Provide assistance to students and groups when needed  -Encourage participation through open ended questioning  -Encourage students to think about prior learning in science  Preparation/Safety:  -Ensure Interactive whiteboard is working in order to display the PowerPoint presentation.  -Ensure children follow classroom rules and behaviour techniques at all times. |
| Lesson 2 | Review previous lesson. As a class discuss the differences in types of boats they remember from the PowerPoint. Emphasise every boat had different elements – they were different shapes and size and made from different materials.  Have a variety of materials in the middle of the class circle. Discuss the different types of materials. Students will examine different possible materials that could be used to make a boat. Ask students to think about their own boat ideas. What are some different materials you could use to make a boat? Will this work in water? Will you boat float in order to be in the boat race? Record student responses on butcher paper for class future reference.  Display the video – How to make a toy boat. Encourage students to watch for ideas to use in their own design.  Ask students to continue thinking about suitable materials as they begin to design their own boat. Students will draw and label their chosen design in their technology booklet. Students are to sketch what their boat will look like and the colours which they will use once they have made their boat. Students will then label their design – describing the chosen materials they are going to use for their challenge.  In pairs, have students share their sketch and label. Encourage contribution within pairs describing the positives within the design and possible adaptions they believe may make the boat better.  Students, using their technology booklet are to complete a list of materials they need in order to create their plan. Students can extend their design by including steps in which they wish to create and use materials. Encourage students to use a variety of materials and consider the size, shape and weight of their boat. Ensure each student displays a draft plan and can explain their reasoning for chosen materials. Encourage students to use this list to source materials and bring in appropriate materials from home in order to complete their boat. | -Interactive Whiteboard  -Technology Booklet – Let’s make a boat that floats  -A variety of materials to look at  -Glue  -Printed image of boats  -Markers  -Butcher paper  -Pencils | Differentiation/Teacher Roles:  -Ensure all students are supported throughout the process.  -Assist students with their drawings and labelling  -Encourage students with literacy difficulties to attempt spelling and completing their list by sounding out words and using appropriate support techniques  -Teacher aide will provide one on one assistance where necessary  -Provide examples of labelling and diagrams/sketch on the board  - Allocate groups or pairs of mixed abilities to encourage cooperative learning  -Ensure all students are listening and cooperating in classroom discussion  -Encourage pairs to discuss design ideas and suggestions  -Use literacy techniques to assist students to consider why some materials may not be suitable for their design.  Preparation/Safety:  -Ensure students remain careful when using scissors  -Gather together a variety of possible materials and resources which could be used.  -Ensure each child has a Technology booklet named and on desk.  -Ensure each child has appropriate pencils and colours when completing labelled diagram plan. |
| Lesson 3 | In this lesson students will have the opportunity to construct the boat they have designed. Students will use the materials and resources to create the book while following their plan and sketch/label diagram.  Ensure students are following their plan throughout the process and act responsibly using materials and resources throughout the construction process. | **-**Interactive Whiteboard  -Class example of plan  -Student materials  - Technology Booklet – Let’s make a boat that floats  -Glue  -Tape  -Scissors  -A variety of materials | Differentiation/Teacher Roles:  -Support students in following their plan throughout construction process.  -Encourage students to consider their design and material choices when working  - Allocate groups or pairs of mixed abilities to encourage cooperative learning  -Ensure all students are listening and cooperating in classroom discussion  -Encourage pairs to discuss design ideas and suggestions  -Ensure students have their plan and labelled diagrams with them during the completion of their boat.  Preparation/Safety:  -Ensure materials are age appropriate and safe for students  -Ensure students follow classroom rules and use scissors and equipment correctly. |
| Lesson 4 | This lesson will start by students reviewing a class member’s boat. Students will be encouraged to explore the materials and how strong and effective the boat floats, and aligns with the challenge requirements including being appealing to prep students and being able to float in the prep class boat race. Students are encouraged to share their thoughts on their partners design.  Once sharing with a class member, students will reflect on and review their own completed design. Sitting individually students will complete their reflection and evaluation worksheets within their technology booklet.  Did you only use the materials provided? Did your completed boat match your design plan? Did you boat float in order to be in a boat race? Students are encouraged to think very hard about how an object moves depends on a variety of factors including their size, shape and the materials used. Provide assistance to students throughout the worksheet as they explain what they would change and how effective their design was in meeting the challenge task requirements.  Complete the design challenge with a whole class discussion. Ask students to identify what was successful, do they believe they completed the design task? What would you do next time when creating a boat that needed to float? | -Technology Booklet – Let’s make a boat that floats  -Pencils  -Completed boats | Differentiation/Teacher Roles:  -Provide explicit instructions where necessary to confirm understanding  -Assist ESL and students with literacy and learning difficulties  -Provide extra support when needed by displaying examples on the board, and supporting students as the explain their findings  -Encourage students to reflect on prior learning and each step within the design process when reflecting  -Ensure students remain respectful of class members and their boats.  -Work through each elements within the booklet to support students understanding  -Encourage supportive and constructive feedback to others  Preparation/Safety:  -Ensure each student has their individual technology booklet  -Allocate groups or pairs of mixed abilities to encourage cooperative learning.  -Ensure students are responsible around water |