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| **Reception** | |
| **Build a boat** | |
| **Links made with other subjects** | Understanding the World  History – how things have changed over time  Expressive Arts and Design |
| **The BIG Question** | Can you build a boat from scratch and make it float? |
| **The BIG Outcome** | To build a stable structure |
| **DT objectives**  (link to NC) | Design   * Design purposeful, functional, appealing products for themselves and other users based on design criteria * Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology   Make   * Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] * Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics   Evaluate   * Explore and evaluate a range of existing products * Evaluate their ideas and products against design criteria   Technical knowledge   * Build structures, exploring how they can be made stronger, stiffer and more stable * Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. |
| **Prior knowledge**  What prior knowledge is needed for children to be successful in this unit? | This unit builds on children’s early exploring of working with a range of materials, play with construction kits and learning how to follow simple oral instructions. |
| **Future learning**  Consider the conceptual knowledge within a subject that pupils need for future learning not just the recall of facts but the importance of concepts | This unit gives prior knowledge to:  Year 1 – Design and make a castle  Year 2 – Design and make a car garage.  Year 3 – Design and make a greenhouse.  Year 4 – Design and make packaging.  Year 5 – Design and build a bridge.  Year 6 – Design and make a fairground ride |
| **DT strands** | Design   * Design purposeful, functional, appealing products for themselves and other users based on design criteria * Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology   Make   * Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] * Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics   Evaluate   * Explore and evaluate a range of existing products * Evaluate their ideas and products against design criteria   Technical knowledge   * Build structures, exploring how they can be made stronger, stiffer and more stable * Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. |
| **Vocabulary/ Glossary** | Choose, try discuss, drawing, join, fix, scissors, cut, masking tape, structure, strong, weak, sail, float. Shape: square, rectangle, triangle, cube, cuboid, side, surface, on top of, underneath. |
| **Knowledge**  (see italics for knowledge to remember) | The knowledge that children will learn and remember:   1. *Investigate and analyse a range of existing products.* (This can be done through pictures of existing boats – see website links below.) 2. *To identify and different boats and their main features* (boat, yacht) 3. *Generate, develop, model and communicate their ideas through discussion and annotated sketches*. (Who it is for? What will you need? What might it look like? Show the children a range of materials available and ask them to discuss their ideas, children to observe carefully and draw simple shapes and to be able to recognise and name basic mathematical shapes. 4. *Use a range of tools and equipment to perform practical tasks accurately.* (Investigate and develop techniques for joining materials and 3D containers with masking tape or glue. 5. *Select and use tools suitable for the task, explaining their choices, to cut, shape and join paper and card.* 6. Use simple finishing techniques suitable for the product they are creating. 7. *Know and explain how to create a stable structure* (children to think and talk through how their structure will float and what holds it together.) 8. *Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets the design criteria.* |
| **SEND expectations** | 1. To decide on a product being designed. 2. To know how to make a structure stable. 3. To know which tools and equipment they will need to use. 4. To explain how they created their structure. |
| **Resources** | * Pictures/photographs/books showing different types of boats. * Materials – cardboard, card, paper, plastic: *acetate, plastic bags, cellophane* * Joining materials *eg glue, masking tape* * Finishing materials *eg collage materials, paint, fabric pieces* * Scissors, snips, hole punch, stapler |

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| **Websites** | * <https://www.thepriory.merton.sch.uk/BUILD-A-BOAT-STEM-CHALLENGE/> * <https://kidsactivitiesblog.com/56539/boat-crafts-kids-make/> |