1. Year Groups

Year 2

2. Aspect of D&T Cutting and joining

Focus

Construction materials: cutting, shaping and finishing

3. Key learning in design and technology

Prior learning

- Explored and used different materials.
- Cut and joined materials with simple techniques.
- Thought about the user and purpose of products.

Designing

- Design a functional and a ppe ing product or a chosen user and purpose based on simple esign criteria.
- Generate, develop, model an communicate eir ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.

Making

- Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.
- Select from and use materials according to their characteristics

Evaluating

- Explore and evaluate a range of existing products relevant to the project being undertaken.
- Evaluate their ideas throughout and their final products against original design criteria.

Technical knowledge and understanding

- Understand how the working characteristics of materials affect the ways they are used.
- Understand how materials can be combined to create more useful properties.
- Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.
- Know and use technical vocabulary relevant to the project.

4. What could children design, make and evaluate?

Boats – Working models based around the historical topic of Pirates

7. Links to topics and themes

Pirates – History & Islands (Geography)

Science links to properties of materials.

10. Investigative and Evaluative Activities (IEAs)

techniques have been chosen? Who might use it and why?

materials, joining techniques, finishing techniques and fastenings used.

5. Intended users

Themselves

8. Possible contexts

Challenge

Can their pirate ship make it across the stormy

seas to seize the enemy treasure?

6. Purpose of products

of Talbot Swimming Pool.

To be robust enough to sail on the choppy waters

9. Project title - Pirate Ships

Design, make and evaluate a model boat for

themselves to be sailed across the Talbot pool.

• Spoken language – ask relevant questions to build understanding and their vocabulary.

11. Related learning in other subjects

Art and design – quick drawings or detailed observational drawings of one product to develop and share ideas.

16. Possible resources

Toy boats, rubber rings, flotation devices

variety of materials e.g. polystyrene, cork, balsa wood, wooden dowel, fabric

left/right handed scissors, craft knives, staplers, staples, glue

items for finishing e.g.
lollipop sticks for
cladding, sticky-back
plastic, paints and
drawing and colouring
media

17. Key vocabulary

names of existing products, joining and finishing techniques, tools, materials and components

Mast, sail, keel, hull, rudder, port, starboard template, pattern pieces, mark out, join, decorate, finish

features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function

Make drawings of existing products, stating the user and purpose. Identify and label, if appropriate, the fabrics, fastenings and techniques used.

12. Foc se Tasl 3 (FT

Investigate materials to determine which is but for the proper of the product they are creating a flotation exercise – which float, which sink, which absorb water?

Children investigate and evaluate existing toy boats, flotation devices, etc. Explore and compare e.g.

Use questions to develop children's understanding e.g. What materials have been used? How many

parts is it made from? What is it joined with? How is it finished? Why do you think these joining

- Using prepared teaching aids, demonstrate the use of a template or simple paper pattern. Children could make their own templates or paper patterns to make a simple hull for a boat. If necessary, they can use ones provided by the teacher.
- Using prepared teaching aids, demonstrate the correct use of appropriate tools to mark out and cut shapes that can be combined to make a very basic boat. (see teaching resources)
- Using prepared teaching aids, demonstrate appropriate examples of joining techniques for children to practise in guided groups e.g. stapling, gluing or by cutting notches to fit pieces together. Talk about the advantages and disadvantages of each technique.
- Using prepared teaching aids, demonstrate examples of finishing techniques for children to practise in guided groups e.g. cladding or painting (possibly mixed with PVA for water resistance)

3. Re ted learning in cher subjects

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- sort objects into groups on the basis of simple material properties [for example, ability to float)

- recognise and name common types of material [e.g. metal, plastic, wood, rock]

- find out about the uses of a variety of materials and how these are chosen for specific uses on the basis of their simple properties.

Science: Knowledge, skills and understanding

- that it is important to test ideas using evidence from observation
- to use observations to draw conclusions
- to decide whether these conclusions.

Science: Forces and motion – Types of force

- that objects are pulled downwards because of the
- that when objects are pushed or pulled, an opposing pull or push can be felt.

1. Key compete icies

processolving teamwor analysis & evaluation

ganisation

19. Health and safety

Pupils should be taught to work safely, using tools equipment, materials, components and techniques appropriate to the task. Risk assessments should be carried out prior to undertaking this project.

14. Design, Make and Evaluate Assignment (DMEA)

- Provide the children with the context of designing a model of a Pirate ship that they feel could sail across the width of the Talbot swimming pool and survive the waves. Discuss with children the purpose and user of the products they will be designing, making and evaluating. Design criteria developed with the teacher should be used to guide the development and evaluation of the children's products.
- Ask the children to generate a range of ideas e.g. What parts will the product need to have? Label these parts and explore the role they play in a boat, e.g. mast, sail, keel, rudder, etc. What will they be made from? What size will it be? How will it be joined and finished?
- Through talk, drawings and mock-ups, ask the children to develop and communicate their ideas.
 Information and communication technology could be used for symmetry and pattern ideas. Choose one idea to follow through.
- Talk with the children about the stages in making before assembling quality products, applying the knowledge, understanding and skills learnt through the IEAs and FTs.
- Evaluate ongoing work and the final products against the intended purpose and with the intended user, drawing on the design criteria previously agreed.

15. Related learning in other subjects

- Science use knowledge of properties of everyday materials to select appropriate ones for their products.
- *Spoken language ask questions throughout the process to check understanding, develop vocabulary and build knowledge. Listen and respond to adults.
- Art and design use colour & create a flag
- Spoken language ask questions throughout the process to check understanding, develop vocabulary and build knowledge. Explain and articulate their ideas orally.
- Art and design use and develop drawing skills, pattern, texture, and shape as appropriate.
- **Mathematics** measurement using nonstandard and standard units.
- **Computing** use technology purposefully to create and manipulate digital content.

20. Web resources for teachers

https://inspirationlaboratories.com/how-to-build-a-boat/

https://www.youtube.com/watch?v=qncATegYp
eM

https://www.persil.com/uk/dirt-is-good/artscrafts/how-to-make-a-paper-boat-step-bystep.html

https://quickplanproject.blogspot.com/2016/02/thisdesign-and-make-boat-ks1.html

https://www.scholastic.com/teachers/articles/teaching-content/activity-plan-5-6-build-boat-floats/

