

## Medium Term Plan: Supporting Implementation of LTP/Progression Grid

Subject: DT – Free-standing structures

Year: A

NC/PoS:

- Design purposeful, functional, appealing products for themselves and other users based on design criteria
- Generate, develop, model and communicate their ideas through discussion and annotated sketches.
- Select from tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately.
- Select from and use a wide range of materials and components, including construction materials, according to their characteristics
- Explore and evaluate a range of existing products
- Evaluate their ideas and products against design criteria
- Build structures, exploring how they can be made stronger, stiffer and more stable

Prior Learning (what pupils already know and can do)

- Children can use basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card.
- Children know of different methods of joining card and paper – glue and tape.
- Children can use various construction materials.
- Children can construct, stacking blocks vertically and horizontally, making enclosures and creating spaces.
- Children can join construction pieces together to build and balance.
- Children know about the needs of different animals from science – food, water, oxygen, shelter.
- Children have visited Knowsley Safari Park and have seen the different types of enclosures and have experienced being a visitor - one of the intended users.

End points (what pupils MUST know and remember)

- Children can design a structure and can explain the user and purpose. For example: an animal enclosure for people to visit.
- Children can draw an annotated sketch of their free-standing structure and can label it with materials.
- Children can select from PVA glue, glue sticks and scissors to cut and join materials (card and cardboard).
- Children can name free-standing structures: Eiffel tower (European. More familiar example) and The Burj Khalifa in Dubai (tallest example)
- Children can discuss the different types of animal enclosures – penguins have to have water to swim in and land, lions need high fences so they don't jump out, giraffes need trees to eat from.
- Children can state if their structure is suitable for the intended user and purpose. They can offer a way to improve their structure with some guidance.
- Children can strengthen a structure using stronger materials, like card instead of paper or lolly pop sticks instead of cardboard.

Key Vocabulary

Free-standing structure, framework, strengthen, user, purpose, appeal, evaluate

Session 1:

Exploring existing products

- Discuss definition of a free-standing structure and framework
- Look at and research free-standing structures, Eiffel tower and The Burj Khalifa in Dubai

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<p>(tallest example)</p> <ul style="list-style-type: none"><li>- Explore zoo enclosures, link back to Knowsley safari park visit in the autumn term. Consider the user (both visiting user and permanent resident (animal)), purpose and appeal of the enclosures.</li><li>- Consider the zoo keeper and how they will look after the animals and feed them.</li><li>- Moral – Discuss the positives and drawbacks of having animals in zoos.</li><li>- Rule of law – Discuss the rules for keeping animals both at home and at zoos.</li></ul> <p>Vocab: Free-standing structure, framework, user, purpose, evaluate</p>
<p>Session 2: Practising skills</p> <ul style="list-style-type: none"><li>- Practise assembling, joining and combining materials and components together using a variety of methods – glue, tape, string etc</li><li>- Explore making their structures more stable and able to withstand greater loads: explore the use of paper vs card vs cardboard vs wood (like lolly pop sticks.)</li><li>- Know how freestanding structures can be made stronger, stiffer and more stable – fold the card, reinforce with cardboard or lolly pop sticks.</li></ul> <p>Vocab: Free-standing structure, framework, strengthen</p>
<p>Session 3: Designing</p> <ul style="list-style-type: none"><li>- Create a design criterion that considers the user, purpose and appeal.</li><li>- Generate ideas based on simple design criteria and their own experiences, explaining what they could make: animal enclosure</li><li>- Develop, model and communicate their ideas through talking and annotated sketches.</li></ul> <p>Vocab: Free-standing structure, framework, strengthen, user, purpose, appeal, evaluate</p>
<p>Session 4: Making – DT consultant to supply high quality materials and support for this session.</p> <ul style="list-style-type: none"><li>- Plan by suggesting what to do next.</li><li>- Select and use tools, skills and techniques, explaining their choices.</li><li>- Select new and reclaimed materials and construction kits to build their structures – paper, card, cardboard, lolly-pop sticks, straws etc. (children may choose to use their own resources from home to make their enclosure unique/more suitable)</li><li>- Use simple finishing techniques suitable for the structure they are creating e.g. the penguin enclosure may have a clear window to look through.</li><li>- Resilience – during the entire making process, we discuss keeping on trying and never giving up even if the task gets tricky.</li></ul> <p>Vocab: Free-standing structure, framework, strengthen, user, purpose, appeal</p>
<p>Session 5: Evaluating</p> <ul style="list-style-type: none"><li>- Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</li><li>- Consider if it is appealing.</li><li>- Honesty – during the evaluation stages discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work.</li><li>- Evaluate: How has the free-standing structure been stabilised?</li><li>- Functionality: How does the enclosure appeal to the users (animal and zoo visitor)?</li><li>- Honesty – during the evaluation stages we discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work</li></ul>

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Vocab: evaluate
Future learning this content supports: LKS2 – Shell structures UKS2 – Frame structures