

Medium Term Plan: Supporting Implementation of LTP/Progression Grid

Subject: DT – Free-standing structures			Unit 4/4	Year: A – Phase 1
NC/PoS:				
<ul style="list-style-type: none">- 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)				
<ul style="list-style-type: none">- Know how to use basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card.- Know of different methods of joining card and paper – glue and tape.- Know how to use various construction materials.- Know how to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces.- Know how to join construction pieces together to build and balance.- Know about the needs of different animals from science – food, water, oxygen, shelter.				
End points (what pupils MUST know and remember)				
<ul style="list-style-type: none">- Know how to design a structure and can explain the user and purpose. For example: an animal enclosure for people to visit.- Know how to draw an annotated sketch of their free-standing structure and can label it with materials.- Know how to select from PVA glue, glue sticks and scissors to cut and join materials (card and cardboard).- Know how to name free-standing structures: Eiffel tower (European. More familiar example) and The Burj Khalifa in Dubai (tallest example)- Know how to 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.- Know if their structure is suitable for the intended user and purpose. They can offer a way to improve their structure with some guidance.- Know how to 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				
Recommended resources:				
<ul style="list-style-type: none">- Photographs or models of free-standing structures (Eiffel Tower, Burj Khalifa)- Images or videos of zoo enclosures- Materials: paper, card, cardboard, lolly pop sticks, string, tape, glue- Annotated sketch templates and aerial view planning sheets- DT toolkits with scissors, glue sticks, PVA				

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<ul style="list-style-type: none">- Finishing materials (plastic sheets, coloured paper, stickers)- Zoo request message template for design stimulus
<p>Curriculum connections:</p> <p>Science</p> <ul style="list-style-type: none">- KS1 year A – Animals – The children will use their knowledge of classifying animals in science and their trip to the zoo to design and make an animal enclosure for one of the animals discussed. <p>Geography</p> <ul style="list-style-type: none">- Aerial view planning; habitats around the world <p>Personal development</p> <ul style="list-style-type: none">- Rule of law and moral discussions on zoo ethics- Safety (hole punches, glue guns, scissors, glue sticks) <p>English</p> <ul style="list-style-type: none">- Speaking and listening during evaluations when providing feedback for each other's product- Descriptive language to describe product and buildings and the animals to ascertain the features required for the enclosure <p>Maths</p> <ul style="list-style-type: none">- Measuring materials (non-standard measures),- Considering shapes of the enclosure, rectangular enclosure and how to make the corners stable. <p>Art and Design</p> <ul style="list-style-type: none">- Annotated sketching, finishing techniques, presentation skills- Architecture- Colour choices (green for grass, white for ice, why not using pink? Blending in with surroundings)
<p>Career opportunities:</p> <ul style="list-style-type: none">- Architect- Structural Engineer- Zoo Designer- Construction Worker- Set Designer
<p>Session 1:</p> <p>Evaluating existing products</p> <ul style="list-style-type: none">- Discuss definition of a free-standing structure and framework- Look at and research free-standing structures, Eiffel tower and The Burj Khalifa in Dubai (tallest example)- 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.- Consider the zoo keeper and how they will look after the animals and feed them.- Moral – Discuss the positives and drawbacks of having animals in zoos.- Rule of law – Discuss the rules for keeping animals both at home and at zoos. <p>Vocab: Free-standing structure, framework, user, purpose, evaluate</p>
<p>Session 2:</p> <p>Practising skills</p> <ul style="list-style-type: none">- Practise assembling, joining and combining materials and components together using a variety of methods – glue, tape, string etc- 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.)

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<ul style="list-style-type: none">- Know how freestanding structures can be made stronger, stiffer and more stable – fold the card, reinforce with cardboard or lolly pop sticks.
Vocab: Free-standing structure, framework, strengthen
<p>Session 3: Designing</p> <ul style="list-style-type: none">- Create a design criterion that considers the user, purpose and appeal.- Generate ideas based on simple design criteria and their own experiences, explaining what they could make: animal enclosure- Develop, model and communicate their ideas through talking and annotated sketches.- Children receive a message from the zoo requesting the children create a prototype of an animal enclosure for a new animal that is joining the zoo (elephant, penguin, monkey, lion)- Children's design to be done as an aerial view (geography link)
Vocab: Free-standing structure, framework, strengthen, user, purpose, appeal, evaluate
<p>Session 4: Making – DT consultant to supply high quality materials and support for this session.</p> <ul style="list-style-type: none">- Plan by suggesting what to do next.- Select and use tools, skills and techniques, explaining their choices.- 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)- Use simple finishing techniques suitable for the structure they are creating e.g. the penguin enclosure may have a clear window to look through.- Resilience – during the entire making process, we discuss keeping on trying and never giving up even if the task gets tricky.
Vocab: Free-standing structure, framework, strengthen, user, purpose, appeal
<p>Session 5: Evaluating</p> <ul style="list-style-type: none">- Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.- Consider if it is appealing.- Honesty – during the evaluation stages discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work.- Evaluate: How has the free-standing structure been stabilised?- Functionality: How does the enclosure appeal to the users (animal and zoo visitor)?- Honesty – during the evaluation stages we discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work
Vocab: evaluate
Future learning this content supports: Phase 2 – Shell structures Phase 3 – Frame structures