



Riversdale Primary School – Pupil Knowledge Organiser



Year Group	5	Unit of Learning	May the Forces be with You: Part 2	Subject	Design Technology
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Sequence of Lessons

Learning Objective	What are different types of cam mechanisms?	What kinds of toys use cam mechanisms?	How might we strengthen the structure of a moving toy?	Can we design a moving toy with a cam mechanism?	Can we follow our design?	Is our final product fit for purpose?
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Key Vocabulary

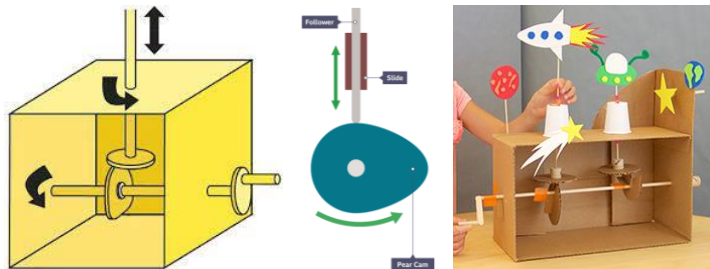
cam
mechanism
crank
follower
frame
slide/slider
linear
rotation
oscillation
axel
support
braces
frames
storyboard

exploded design
visualisation
prototype
testing
refining
functionality
integrity
evaluation
alignment
criteria
user
feedback
improvements
fit-for-purpose

Key Knowledge

- Cams are mechanical components that impact motion to other parts.
- Cam mechanisms consist of a crank, follower, cam, frame and axel.
- Cam mechanisms are widely used in toys to create rotation and oscillation.
- The choice of cam shape depends on the desired motion or action in a toy.
- Adding support structures like braces and frames can strengthen the toy's overall stability and prevent wobbling or collapsing during motion.
- Combining modelling, drawing, and storyboarding, aids in the design and visualisation of cam-based toys.
- Prototypes are crucial for testing and refining designs, ensuring functionality and structural integrity.
- Evaluation involves assessing a toy's functionality, appearance, and alignment with design criteria and user needs.
- Making improvements based on user feedback is essential for creating a fit-for-purpose final product.

Key Concepts



Key Assessment Questions

- What are the components of a cam mechanism?
- What is the purpose of cam mechanisms in a machine or toy?
What kind of movements do cam mechanisms create?
- What determines the shape of a cam in a toy?
- Why do we use support structures in cam-based toys?
- What tools and techniques can help you design a cam-based toy?
- Why do we make prototypes when designing a toy with cam mechanisms?
- What do we look at when we evaluate a cam-based toy we've designed?
- Why is it important to listen to what users say about your toy and make changes?