



Learning Exploration: Cracking Contraptions

Our 'Cracking Contraptions' Learning Exploration aims to develop understanding of the fundamental principle of design and technology and explicitly teach the skill necessary to complete the design, make, evaluate cycle. Exploring levers, linkages, and pneumatic systems encourages creativity, critical thinking, and problem-solving. By designing and making contraptions, students apply theoretical knowledge to real-world scenarios, promoting practical skills development. This aligns with the school's value of innovation, encouraging students to think independently and develop inventive solutions. Overall, this exploration aims to cultivate a sense of curiosity and resilience — essential qualities for future innovators and problem solvers.

Hook into learning:

Children will take part in the 'Spaghetti Tower Challenge'! Can they design and build the tallest tower?

Journey through the exploration

This Learning Exploration will give children the opportunity to answer the following questions:

- How do simple designs use levers and linkages to make things move?
- What are pneumatic (air powered) systems and how do they make things move?
- How do designers think about what the end user wants? How do they decide which features to include?
- How do we plan a design? How do we know which materials to use?
- How do we evaluate our design?



Parent/Carer Curriculum Information

Year 4

Linked subjects

Through this exploration, learning will be linked where appropriate, including in the following subjects:

- Design Technology
- Maths
- Writing

The following subjects will also be taught discretely during this half term:

- RE
- Computing
- PSHE
- Primary Languages
- Music
- Geography
- PE

Maths

Children will explore:

- Length and perimeter
- Fractions



Writing

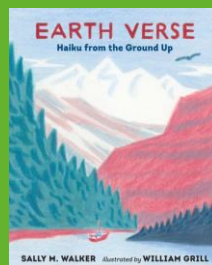
Children will explore the following genres of writing:

Non-fiction:

- Poetry: Earth Verse by Sally M Walker
- Fiction: Oliver and the Seawigs by Philip Reeve and Sarah McIntyre

Opportunities for writing across the curriculum:

- **Geography** – Climate zones
- **RE** – Why is Good Friday important? (Mary's Diary)
- **DT** – Planning a pneumatic and lever project



Opportunities to build cultural capital

Cultural capital is the essential knowledge that pupils need to be educated citizens, introducing them to the best that has been thought and said, and helping to engender an appreciation of human creativity and achievement.

At NCSPA, we aim to build cultural capital through experiences such as trips, visitors, music and providing local links.

For Year 4, options this term may include:

- Year 4 girls will be attending a football festival.

Opportunities for shared outcomes

Children will have the opportunity to produce or take part in one or more of the following:

- Pneumatic toys to share with children in reception.
- Building biomes in Minecraft in a collaborative server.



Opportunities to address Equality, Diversity and Inclusion

Pupils will have opportunities to:

- Examine the work of designers from a variety of backgrounds
- Through their geography learning, understand what life may be like for people living in the different climate zones of Earth



Further curriculum information

If you would like any further information regarding the curriculum, please:

- Speak to Mrs Vine or Mrs Coslett
- Contact Mrs Gregory - KS2 Leader - through the school office.
- See your child's class information on **Seesaw**.
- Visit the Curriculum pages on our website.
- **If you would more details of our Jigsaw PSHE sessions and access to the resources that teachers will be using to deliver them, please let the office know and they can provide you with a link for your child's year group.**

