



ANNALIESE AVERY

THE
NIGHTSILVER
PROMISE

TEACHING RESOURCES



CONTENTS

Lesson Plan: Year 5

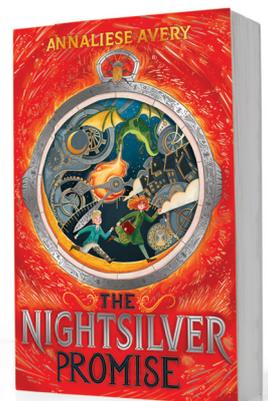
Resource Sheet 1: A Place Above

Lesson Plan: Year 6

Resource Sheet 1: A Replica of the Heavens

Resource Sheet 2: A Mechanism in the Making

Curriculum Links



SCHOLASTIC

ANNALIESE AVERY

THE NIGHTSILVER PROMISE



LESSON PLAN: YEAR 5

LESSON OBJECTIVES

- To understand how a pulley system works.
- To create an imaginary place inspired by a story.

OUTCOMES

- Children will work in small groups to create a model of an imaginary version of a local place.
- Children will use a pulley system to suspend their model and make it move.

RESOURCES

- *The Nightsilver Promise* by Annaliese Avery
- *Resource Sheet 1: A Place Above*
- Cardboard boxes, strong card, coloured and metallic paper, sticky stars, paints
- A pulley kit or separate components including thick rope, thin rope, metal pulleys and carabiners

LEAD IN

We are introduced on page 1 to one of the floating boroughs that are mentioned throughout the book, and of course, this particular floating borough plays a focal part in the story.

‘She glanced up, squinting into the clear winter sky. She could just make out the floating borough of Greenwich Overhead as it sat in the west away from the rising sun.’

A little later in the story on page 19,

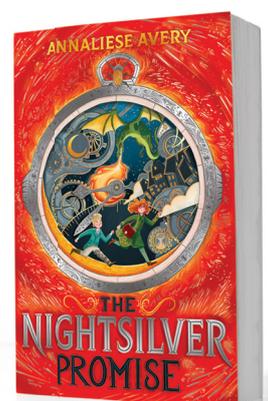
‘Paisley woke to find herself lying on the cold hard cobbles, looking up at the blue sky. The dark squat shape of Harrow-on-High floated overhead.’

Discuss with the class the images that come to mind when these floating boroughs are mentioned. Show the children photographs of the actual places in the names of the floating boroughs. Why do the children think the author, Annaliese Avery, chose these parts of London to be in the names of the floating boroughs in the story? What are these places like in real life? Can the children imagine these places being up in the sky? Ask the children to think about the ways in which Paisley’s world is similar to ours. For example, on page 2, ‘The frost-covered streets of Lower London’ and ‘the frozen Thames’ are images that the children will relate to. Ask the children to think of how Paisley’s world is different to ours. On page 2 it goes on to say,

‘She was as sure of her future as she was that the sun was made of dragon fire and the Earth was made of clockwork’.



SCHOLASTIC



ANNALIESE AVERY

THE NIGHTSILVER PROMISE



LESSON PLAN: YEAR 5

Using *Resource Sheet 1: A Place Above*, ask the children to draw a picture of what they imagine they would see in the sky in Paisley's world. How would the floating boroughs appear from the ground? Would the buildings be silhouetted with just an outline of their shape visible or would details, such as trees and windows, be seen from Lower London? Would there be a clockwork element to the floating boroughs? Would it appear as part of an intricate mechanism?

Ask the children to think about how the sky might appear, referring to different parts of the story. For example, a blue sky is mentioned on page 1. Alternatively, the children may choose to draw a night skyscape, showing the lights of the floating boroughs and a sky filled with star constellations.

MAIN TASK

Explain to the children that they are going to make their own floating places, inspired by the story, based on their local area. For example, if your school is in a city that is made up of towns, each group could select a town and create a name for this floating place using prepositional terms just as the book does, for example, 'on-High' and 'Above'. The name of your school's area could also be changed, adding a word such as 'Lower' or 'Below'.

Explain to the children that once their place has been created, it needs to be displayed 'overhead' and that this is going to be done with the use of ropes and pulleys rather than the usual static classroom 'washing line'. The reason for this display method is so that the floating places can move just as they do in the book. This project will provide the children with wonderful opportunities to explore forces and motion through ropes and pulleys and apply their engineering skills to suspend their floating place and provide motion for it to travel above the class.

Simple pulley kits could be used or separate components could be provided for the children to select what they need, including thick ropes to carry the weight of the model, metal pulleys, thin ropes to go around the metal pulleys and carabiners.

Before the children attempt to suspend their model, they can be given time to build and play with a pulley system to strengthen their understanding of how a pulley system works. This doesn't have to be done in the classroom, for example, it could be done outside between two trees.

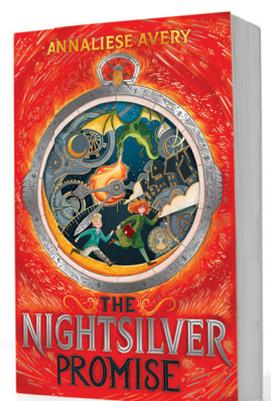
To showcase the floating boroughs and to celebrate the story's celestial theme, the ceiling of your classroom could become 'a replica of the heavens' with a display of stars, the moon, the sun and the planets. The children could deepen their knowledge of the night sky by finding out about which star constellations and planets can currently be seen on a cloudless night. Real lights could be added to the display to bring it to life, just like the electrica light in the story.

PLENARY

A good way for children to consolidate their learning is to teach it to others. This would be a wonderful opportunity for each group to take on the role of the mechanists and to show and talk to the rest of the class about their floating place and the stars and planets above, demonstrating how their floating place moves across the sky. If your class look up very carefully, they might even spot a dragon or two.



 SCHOLASTIC



ANNALIESE AVERY

THE
NIGHTSILVER
PROMISE



RESOURCE SHEET 1: A PLACE ABOVE

Imagine you are Paisley Fitzwilliam, standing on a cobbled, frost-covered street in Lower London and looking up to the sky. Draw what you can see above you.



 SCHOLASTIC

ANNALIESE AVERY

THE NIGHTSILVER PROMISE



LESSON PLAN: YEAR 6

LESSON OBJECTIVES

- To develop the knowledge of each planet's place in the solar system.
- To explore and assemble mechanical parts and circuits.

OUTCOMES

- Children will work within a small group to design and make an orrery.

RESOURCES

- *The Nightsilver Promise* by Annaliese Avery
- *Resource Sheet 1: A Replica of the Heavens*
- *Resource Sheet 2: A Mechanism in the Making*
- Books, websites and video clips about the solar system
- An orrery and/or photographs of orreries
- A selection of cogs (gears), rods, cardboard
- Circuit boards with lamp bulbs and motors
- A selection of small stones
- Paint, pens, scissors and glue

LEAD IN

As Chapter Four begins, '**Paisley and Dax had almost finished building the Orrery**'. As the book describes this '**replica of the heavens**', children will develop a picture in their mind of what this mechanism might look like. Whether the children are familiar or not with what an orrery is, the book will ignite their imagination and as '**The Day of Small Turnings**' is read, it would be a good opportunity for children to jot down and sketch what they imagine the Orrery looks like (use *Resource Sheet 1: A Replica of the Heavens*).

The description of the Orrery on page 33 could be displayed on a visualiser for children to refer to as they draw and write.

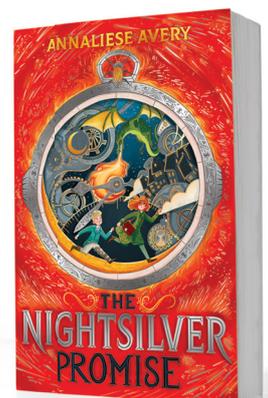
'...its golden tracks showing the path of each of the planets and their moons. In the centre was a brass moon, connected to the circular tracks by a network of cogs that lifted the tracks of the celestial mechanism off the table by long metal poles.'

The children could also closely observe real life objects as they draw and write their ideas. In this digital age, the children may have limited experience of what cogs are and how they work. An old clock with cogs that can be observed working would be a wonderful resource. Additionally, a selection of brass cogs could be displayed so that the children could carefully observe their shape, '**teeth**' and how they relate to each other. The children can then imagine the appearance of the cog on page 34 ('**Paisley reached into the box and picked out a little golden cog**') and how it might have fitted into the mechanism.

Show the children a real orrery or photographs of some spectacular ones with brass or wooden cogs, rods and circular tracks. How do these compare to how they imagined the Orrery in the story?



SCHOLASTIC



ANNALIESE AVERY

THE NIGHTSILVER PROMISE



LESSON PLAN: YEAR 6

On page 34, Dax says,

“I wish we had an orrery like they have in the mechanist chapels... I’d love one with all the stars on it as well as the planets...”

This may spark the children’s imagination further as you explain the main task.

MAIN TASK

Explain to the children that, in small groups, they are going to be using their STEM (Science, Technology, Engineering and Maths) skills to design and make an orrery. This project will have an astronomy focus, providing an opportunity for the children to find out about the solar system or develop their knowledge further.

Using *Resource sheet 2: Mechanism in the Making*, the children can explore their ideas as to how a replica of the solar system can be made that shows relative sizes and distances from the sun. The available resources should be provided for children to handle and assemble as they explore which components work well together.

On page 40,

‘Dax carefully adjusted the positive and negative connector plates’ and ‘once the Fire Diamond was in place, and the connecting plates lowered, it would be ready to set the sun and planets, moons and stars of the Orrery into motion’.

This would be a wonderful opportunity for children to explore battery powered circuit kits with motors and lamp bulbs and to apply these to their designs to reflect the Fire Diamond in the story as it sparks **‘electrica’** through the machine.

The children could select a real stone to add to their mechanism to give authenticity. The Fire Diamond is described as a tiny, black stone.

MINI PLENARY

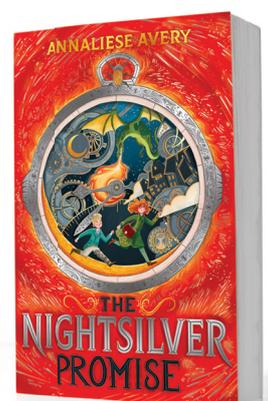
Throughout this investigation time, which may be over one lesson or a series of lessons, children can be given the opportunity to share what has and hasn’t gone well. They may have drawn a design on paper but as they have attempted to construct it, it hasn’t worked. These experiences are an essential part of any design process and should be celebrated to reflect this.

PLENARY

A Day of Short Turnings could be celebrated in class to reflect the story and showcase the orrery made by each group. Re-read page 24, Paisley returns home and **‘the comforting smell of warm gingerbread hit her...’** The housekeeper, Mrs Keen, carries a tray full of gingerbread cogs, each one iced in yellow. This would certainly ignite the children’s senses as they celebrate their STEM projects and the story.



 SCHOLASTIC



ANNALIESE AVERY

THE
NIGHTSILVER
PROMISE



RESOURCE SHEET 1: A REPLICA OF THE HEAVENS

Read Chapter Four 'The Day of Short Turnings' and draw and write down your ideas of how you imagine the Orrery.



ANNALIESE AVERY

THE NIGHTSILVER PROMISE



RESOURCE SHEET 2: A MECHANISM IN THE MAKING

Use this to plan your orrery design

Draw a detailed picture of your Orrery design.
Add any labels to show how the orrery will work.

Resources

Notes

What has worked well?

What has not worked well?

What changes have been made to the design?

Could the design be improved further?



ANNALIESE AVERY

THE NIGHTSILVER PROMISE



CURRICULUM LINKS

SCIENCE

Forces and Magnets (Year 5)

- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Earth and Space (Year 5)

- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.
- Describe the movement of the Moon relative to the Earth.
- Describe the Sun, Earth and Moon as approximately spherical bodies.
- Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Electricity (Year 6)

- Associate the brightness of a lamp with the number and voltage of cells used in the circuit.
- Compare and give reasons for variations in how components function, including the brightness of bulbs and the on/off position of switches.

DESIGN AND TECHNOLOGY

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.

Design

- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Make

- Select from and use a wider range of tools and equipment to perform practical tasks.
- Select from and use a wider range of materials, textiles and ingredients, according to their functional properties and aesthetic qualities.

Evaluate

- Investigate and analyse a range of existing products.
- Evaluate their ideas and products against their own criteria and consider the views of others to improve their work.
- Understand how key events and individuals in design and technology have helped shape the world.

Technical knowledge

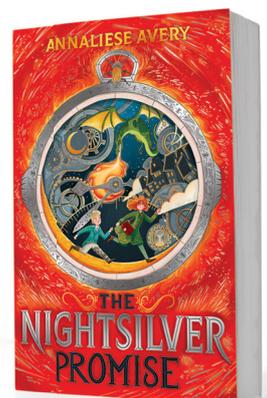
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- Understand and use mechanical systems in their products.
- Apply their understanding of computing to program, monitor and control their products.

ART

- Pupils should be taught to develop their techniques, including their control and use of materials, with creativity, experimentation and an increasing awareness of different kinds of art, craft and design.



SCHOLASTIC



ANNALIESE AVERY

THE
NIGHTSILVER
PROMISE



CURRICULUM LINKS



 SCHOLASTIC

