



# Ravenglass & Eskdale Railway and Museum

Resources and activities for Primary Schools

Innovate Educate Ltd



# Theme 1: Communication

## Contents

	Page	STEM	Lit	Art	Hist
Story-telling in a museum	3		x		
Skills to make a museum display	4		x	x	x
The importance of planning and good design	6		x		
Writing for museums	9		x		x
Researching different types of display and deciding on a theme for a display	12		x	x	x
Signalling with paddles and lamps	16	x			
Signalling with levers and pulleys	19	x			
Signalling with circuits and lights	22	x			

## Introduction

The museum at the Ravenglass and Eskdale Railway tells the stories of the railway, its local communities and the local area. These resources look at communication and how the stories of the railway are told. There are also science, technology, engineering and mathematics (STEM) activities linked with the theme of communication.

In 2017, the museum was extended. This was an opportunity for staff at the museum to think critically about how to tell the railway's stories and, crucially, which stories to tell. The museum has an exhibition area that schools and community groups can use to create their own displays. These sessions are built around children receiving an invitation from staff at the museum to create an exhibition, display or creative response that can be shown either at school or in the museum.

The children will look at how professionals create a new museum. They will then look at how to write for a museum and explore local stories through research with primary and secondary sources.

The resources are designed to engage children actively with the museum through objects, suitcases with objects belonging to different characters and interpretation boards. These sessions also fit with the Arts Award framework for Discover and Explore, for teachers or group leaders who are Arts Award assessors.

## **Story-telling in museums**

These sessions will get children thinking about the ways in which museums tell stories in an engaging and informative manner. They give children the opportunities to develop their skills in creative as well as factual writing, consider the design of exhibits and create their own exhibition to tell a story.

## Session 1: Skills to make a museum display

School

The children will be learning about museums and how to create a display for the community exhibition area of the gallery.

The children will find out about the people and the skills needed to create a new museum.

This activity is also suitable for Arts Award Discover and Explore.

Introduction	Activities		Plenary	Follow up
<p><b>Discuss</b></p> <p>Have the children been to a museum before?</p> <p>What are the museums for?</p> <p>Who has visited the Ravensglass Railway Museum (or another museum)?</p> <p>What do they enjoy about visiting museums?</p> <p>Is there anything they don't enjoy?</p> <p>Make a list of both.</p> <p><b>Explain</b> that the manager at the museum has asked the children to create a display for the museum.</p>	<p><b>Explore</b></p> <p>First of all the children are going to learn about the skills needed to create a new display.</p> <p>Ask the children to make three lists: one of the skills needed to make a display, one of the people who have these skills.</p> <p>Now ask them to draw links between the people and the skills.</p> <p>What sort of artistic skills do these people have? Add this third list and draw links to the people.</p> <p>Gather feedback. Make it a competition to see who has the longest list.</p>	<p><b>Share</b></p> <p>The children can look at the designs for the museum.</p> <p>This will help them to locate their list of skills in the context of the museum.</p> <p><b>Create</b></p> <p>Create a haiku about one of the artists or crafts people who work in museums.</p> <p>A haiku is made up of three lines, the first with five syllables, the second with seven and the final with five.</p> <p>Share the haikus.</p>	<p><b>Group discussion</b></p> <p>Discuss the skills children will need to create their display.</p> <p>Discuss the stages they will go through to create their display. Planning is very important to both artists and crafts people. The process they follow is:</p> <p>Plan/research</p> <p>Designing</p> <p>Making</p> <p>Testing</p> <p>Reviewing.</p>	<p><b>Plan</b></p> <p>The children will visit the museum to look at the display area, look at the other exhibits and objects and they will look at how the museum tells stories.</p> <p>Ask the children to make plans of what they need to gather from their museum visit to help them create their display.</p> <p>Use the headings.</p>

## Supporting information for teachers

The Ravenglass Railway Museum tells stories in many different ways and there are lots of skills, arts and crafts involved in creating a museum. The background to this session is the refurbishment and extension of the Ravenglass Railway Museum in 2017. Museum staff worked with researchers, subject experts, copywriters, designers (museum designers and graphic designers) and volunteers to help tell the stories of the railway. All of the stories focus on the railway, its people, its community and the route followed by the railway line.

A team of people created the museum. Referring back to the list of artists and art and craft work, ask the children what sorts of people might have worked on the museum.

- *Copywriters*
- *Designers*
- *Graphic designers*
- *Museum designers/Interpretation designers*
- *Subject specialists*
- *Photographers*
- *Museum staff*
- *Architects*
- *Construction workers.*

## Session 2: The importance of planning and good design

School

This activity explores the importance of good design in a museum setting. Children will explore museum design plans and then create a logo and colour scheme for the museum. This activity is also suitable for Arts Award Discover and Explore.

Introduction	Activities		Design activity	Follow up
<p><b>Discuss</b></p> <p>Show images from Previous museum design presentation.</p> <p>What do the children think of the old museum design?</p> <p>Prompt them to think about:</p> <ul style="list-style-type: none"> <li>• Objects and how they are displayed</li> <li>• Labels</li> <li>• Colour schemes</li> <li>• Logos</li> <li>• How stories are told</li> <li>• How much information is on panels</li> <li>• How easy or difficult is it to read the panels.</li> </ul>	<p><b>Explain</b></p> <p>The original museum was small so not big enough to display the locomotives and coaches, the main attraction of the railway.</p> <p>Now visitors can learn about the history of the railway by:</p> <ul style="list-style-type: none"> <li>• Dressing up as people who worked on the railway in the past</li> <li>• Discovering their stories</li> <li>• Finding out about how steam trains work from an actual engine</li> <li>• Exploring communication on the railway.</li> </ul>	<p><b>Share the designs PPT</b></p> <p>Children discuss the actual designs in role as:</p> <ul style="list-style-type: none"> <li>• The museum manager</li> <li>• The station master</li> <li>• An engine driver</li> <li>• A teacher thinking of taking a class to visit the museum</li> <li>• A family local family</li> <li>• A family on holiday in the area.</li> </ul> <p>What are the good and bad points about the designs?</p> <p>Are there any ideas the children might like to add?</p> <p>Make a list.</p> <p>Share their ideas.</p>	<p><b>Group discussion</b></p> <p>Now the children are in the role of museum designers, ask the children to design a logo that will attract visitors to the museum.</p> <p><b>Think about</b></p> <p>Will they keep the same name (Ravenglass Railway Museum)?</p> <p>What colour scheme will they use.</p> <p>How will the logo work around the museum and in other marketing such as bags, hats etc.</p> <p>Presentation gives examples of designs from different train companies that the children can use for inspiration.</p>	<p><b>Ideas to make the museum more child-friendly</b></p> <p>The staff at the railway want children to enjoy visiting the museum.</p> <p>They have suggested creating a 'set' for children to step into to have their photographs taken by family and friends.</p> <p>What do the children think of this idea?</p> <p>Can they design a 'set' for their classroom photograph?</p> <p>What other ideas do they think the museum could use to attract children and families?</p>

## Supporting information for teachers

Even though it was free to go into the Ravensglass Railway Museum, visitors often missed it as they went straight to the railway. Museum staff and the design team extended and refurbished the museum to make it more attractive to wider range of people.

In this session you will share the plans developed by the museum designers when creating the new museum at Ravensglass.

The original museum was small so it could tell some of the railway's stories but it was not big enough to display the locomotives and coaches; the main attractions from the railway.

This is now possible and there are actual trains and coaches that people can touch and sit on. The museum has more space and more things for visitors to do. They can learn about the history of the railway by:

- Dressing up as people who worked on the railway in the past
- Finding out about how steam trains work from an actual engine
- Exploring how people communicate on the railway
- Discovering the stories of people who worked there in the past and those who work here today
- The story of energy in the area.

Ask the children to look at the designs.

What do they think works well and what else might they like to see?

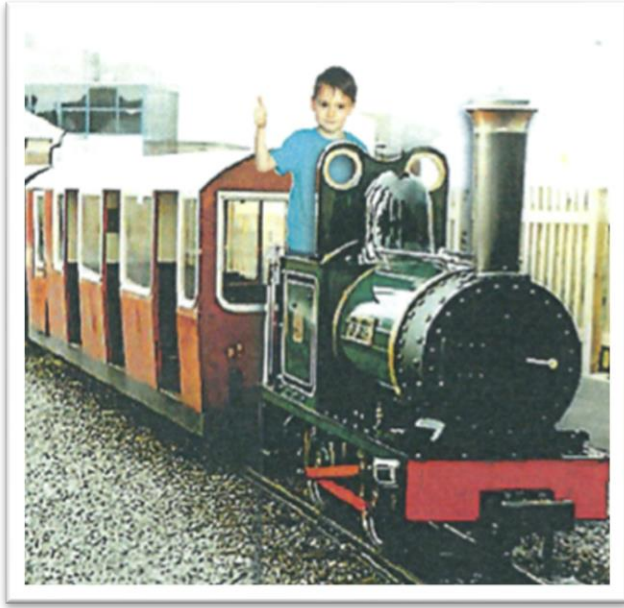
When giving feedback, the children can act in role as:

- The museum manager
- The station master
- An engine driver
- A teacher thinking of taking a class to visit the museum
- A family local family
- A family on holiday in the area.

The staff at the museum want children to enjoy visiting the museum. There are lots of ideas and activities on site designed to engage children. One idea is a 'set' for children to step in to have their photographs taken by family and friends (see image below).

- What do the children think of this idea?
- Can they design a 'set' for their classroom photograph?

## Photo opportunity



An exhibit in the museum will allow visitors to take a photo as if they were on the locomotive.



Session 3: Writing for museums			Museum	
<p>This session looks at writing in a museum setting. This is an opportunity to look at writing for different purposes, writing labels, headings, stories, factual information, instructions and signs. It is offered as a session in the museum but could work with a presentation back in school. This activity is also suitable for Arts Award Discover and Explore.</p>				
Introduction	Activities		Plenary	Follow up
<p><b>Explain</b></p> <p>Museums are about objects but words are used in museums too.</p> <p><b>Explain</b> that in museums people (everyone, of all ages) spend between three seconds and three minutes in front of text, depending on how interesting they find it.</p> <p>The best way to grab someone's attention is through an interesting, label, headline, fact or story.</p>	<p><b>Explore</b></p> <p>Children look around the gallery and list or photograph the different types of text they can see. Ask the children to share their list with the group. Can they group the types of text? The items should fall into:</p> <ul style="list-style-type: none"> <li>• Signs</li> <li>• Labels</li> <li>• Titles</li> <li>• Interpretation panels</li> </ul> <p>With</p> <ul style="list-style-type: none"> <li>• Stories</li> <li>• Facts</li> <li>• Quotations</li> <li>• Instructions.</li> </ul> <p>What is similar and different about the writing?</p>	<p><b>Describe</b></p> <p>In pairs, ask the children to stand with their backs to each other. Give an object to one child and then ask the other child to ask questions to see if they can work out what the object might be. The child holding the object can only say 'yes' or 'no' when asked a question.</p> <p>Can their partner work out what the object is just from their description?</p>	<p><b>Create and share</b></p> <p>The children will choose an object in the museum and write a label for that object.</p> <p>Ask them to look carefully at their object and write down as many adjectives as they can. Do they know anything about their object's story or background? How can they find out more?</p> <p>Labels must be short, no more than ten words.</p> <p>They must give visitors to the museum enough information to understand what the object is.</p>	<p><b>Plan</b></p> <p>How will children let people know about their special display?</p> <p>Ask them to start to design an invitation. Will there be a special opening event? Who will they invite?</p> <p>Can they design a poster to advertise their display online?</p> <p>Can they write a blog about the process of creating their display?</p>

## Supporting information for teachers

When creating this exhibition staff had very clear guidelines for providing the words around the gallery. The PowerPoint presentation *Design brief for the new museum*, can be used by teachers to see the brief that was given to the designers. It can be modified for use with children.

When visiting the museum, have children look around the gallery and see how many different types of text they can see. Ask the children to list or photograph as many different types of writing they can find. Writing should fall into:

- Signs
- Labels
- Titles
- Interpretation panels

With

- Stories
- Facts
- Quotations
- Instructions

Ask the children to share their list with the group.

What are the similarities and differences between the different types of writing, for example: stories and factual information; directions and labels?

The text should be written in plain English which means short active, not passive, sentences. It should capture people's imagination. Every word on the labels or panels should have a purpose.

Have children in groups look at one particular exhibit and panel to consider it in more detail.

In museums people (everyone, of all ages) spend between three seconds and three minutes in front of text, depending on how interesting they find it.

It is important to grab people's attention and the best way to do that is through great stories or unusual facts. Researchers at the museum had to piece together stories from the museum's collection, records in the archive and pictures. Explain that archives hold historic documents and show the children a selection of historic documents from the archive. (The museum has created themed handling collections of leaflets, booklets, tickets and photographs. These are available for schools to use.)

Can the children use this information to tell a story?

## **Activity**

Ask children to choose objects to display.

Explain that the children are going to write labels for the objects. Labels must be short.

Ask them to write down everything they know about their object.

What are the most important pieces of information?

Now ask them to write a label that will describe the object and intrigue other children visiting the museum.

The word limit for the label is ten words.

## **Become the experts**

When they have completed the labels for their object, is there any advice they would give to museum staff on how to write labels for children?

What would their top tips be? There is a suggestion box at the museum where children can leave their ideas and advice.

Summarise what works. Is there any learning the children can take back for their own writing?

## Session 4: Researching different types of display and deciding on a theme for their display

Museum

This session is framed around a visit to the museum to look at the site of the new display and to gather inspiration in terms of presentation and themes or objects to use in a display. This activity is also suitable for Arts Award Discover and Explore.

Introduction	Activities			Follow up
<p><b>Explain</b></p> <p>The purpose of this visit is research. The children will explore the museum to gather inspiration for their display, looking at:</p> <p><b>The display area</b>  <b>How objects are displayed</b>  <b>How stories are told</b>  <b>What is in the museum for children</b>  <b>Explore subjects for their display.</b></p> <p><b>Ask</b> how this is helpful to them when planning their exhibition.</p> <p>What do they need to do to gather information? Make notes, take photos etc.</p>	<p><b>Explore</b></p> <p>Remind the children of the session on skills. Encourage them in small groups (with a teacher or support worker) to explore the museum.</p> <p>Ask them to see how many examples of different arts and crafts they can spot in the museum. How are the art forms used to tell stories?</p> <p>Which art forms work well to tell stories? Which don't work quite so well?</p> <p>How might they choose to tell stories well in their display?</p>	<p><b>Research through objects</b></p> <p>Explain the children are going to use real objects from the museum to research themes for their display. Before you start, work with the children to set rules to avoid any accidents. (See object handling sheet).</p> <p>Ask the children to set their own rules.</p> <p>These should include:</p> <ul style="list-style-type: none"> <li>• Having clean hands</li> <li>• Sitting down and holding objects with two hands over a table (not so far to drop).</li> </ul>	<p><b>Inspiration through object handling</b></p> <p>Use the object handling kits to explore themes in the museums to help the children decide on a theme for their display. There are three kits:</p> <ul style="list-style-type: none"> <li>• Ratty people</li> <li>• Mary Fair</li> <li>• Building the railway.</li> </ul> <p>Use the object handling information to deliver this session.</p> <p>Children will use questions to describe their object, make deductions about it and write a short paragraph interpreting it for others.</p>	<p><b>Plan</b></p> <p>Ask the children to make detailed plans for their exhibition.</p> <p>What will the theme be?</p> <p>Which objects will they use to tell their stories? What sort of objects will they use? Old objects or will the children create items to display?</p> <p>How will they gather information and objects (friends and families)?</p> <p>How will they let people know about their display?</p>

## **Supporting information for teachers**

The purpose of the museum visit is to:

- Look at good practice in displaying objects in a museum setting
- Gather inspiration for their own display.

When arriving at the museum, the school will be welcomed by museum staff and given their invitation formerly to design an exhibition.

Explain that the museum designers have created a space for local people to use for their own temporary exhibitions. Show this space to the children.

Before the children choose a subject for their display, suggest they have a look around the museum.

First of all, remind them of the session on skills used in creating museums. Ask them to see how many examples of different arts and crafts they can spot in the museum. When they have identified an art form, ask them to look at how the art forms are used to tell stories.

Prompt

- Which art forms work well to tell stories?
- What could be better with the displays?
- What might they choose to use to tell stories well in their displays?
- Give them a few minutes to look around and then report back on their favourite ways of finding out about objects or stories in the museum.

## **Research through objects**

Ask the children to look around the museum to see if they can find any objects or stories that interest them.

What do they find interesting about the objects or stories?

- How are they displayed?
- What works well with the displays?
- Is there anything that could be better?
- Is there an object or theme that interests them that might make the subject of a wider display?

## Research kits and handling objects

Children can create an exhibition based on their own ideas which may be separate from the contents of the museum or they may investigate one of the following themes:

- Ratty people
- Mary Fair
- Building the railway.

In this activity children will handle objects that they might put on display.

Handling objects is a great way to learn about the past. To get the most out of this activity, take a little time to think of questions that will help children to investigate their objects.

The questions will help them to:

- Describe their object
- Make deductions about their object's history
- Interpret the object for a wider audience

Ask them to make a list of questions that will help them to **describe** the object. Imagine they have to describe the object to someone who can't see it.

Next ask them to think of questions that will help them to **learn** (make deductions) about their object and what it might have been used for.

Finally ask them to think of the sorts of questions that will help them to **interpret** the object, or tell its stories to other people.

They need to let museum visitors know about the objects but also capture their imagination. Ask the children to explore the objects.

End this session by creating a plan to deliver the display (either at school or in the museum working closely with staff at the museum).

## Back at school

Finally ask them to create a pop up exhibition about their school telling their story of creating an exhibition at the museum.

To create their exhibition each child can create a piece of artwork, work on the display itself, write labels or text.

## Finally

Children can act as a guide and share the exhibition with other children in the school.

The children could also ask parents, carers, grandparents and friends to contribute to the museum and tell different stories from the community.

## **Signals and circuits: communicating on the railway**

These sessions will give children the opportunity to investigate the science and technology behind communicating on the railway. It allows children to investigate the use of:

- Signal paddles (table-tennis bat shaped signals)
- Pulleys and levers
- Electric circuits and lights

The practical sessions can be carried out before or after visiting the railway. During a visit, children are challenged to look at the different ways that signalling is used to make sure that the trains run safely.

### **Signalling with paddles and lamps**

This session gives children the opportunity to think about how information can be passed without using language. At the railway, encourage children to observe how the guard on the platform signals to the driver using hand signals and whistles.

The presentation introduces the idea of signalling and some of the signals used on a railway. Children then design and make their own signal paddles (like table-tennis bats) and devise a code system before using them in a game of 'Simon says' to test their communication skills.

Children can also investigate the use of torches to signal. Are these easier to see than paddles? How well do they perform indoors (school hall) compared to outdoors in bright sunlight?

Covering the light with a coloured, transparent plastic film will allow children to investigate different colours. How do the colours affect how easy it is to see the lamp?

In the museum, children can see examples of lamps used on the railway.



**Session 1: Signalling with paddles and lamps****School, railway and museum**

This session can be before or after the visit to the railway. During a visit, have children look at the hand signals from the guard to the driver when a train is ready to depart. The classroom activities can be performed outside, over large distances, or in the school hall.

Introduction	Activities			Follow up
<p><b>Ask</b></p> <p>Have children think about the different signals that are needed to safely operate the railway. This may include:</p> <ul style="list-style-type: none"> <li>• When all of the passengers are on board the carriages.</li> <li>• When a train can proceed along the tracks.</li> <li>• When a train must stop.</li> </ul> <p>Introduce the challenge that children will first investigate some of the paddles and lamps used to signal on the railway.</p>	<p><b>Railway and museum</b></p> <p>When visiting the railway, have children look for the signals and how the platform despatcher signals to the driver.</p> <p>In the museum, look at the railway lamps and see how they work. Have children consider ways that the colour of the light could be changed on the lamps. This could lead into an investigation on which colours are the easiest to see.</p>	<p><b>Classroom activity</b></p> <p><b>Signal paddles</b></p> <p>Have children make their own signalling paddles. These are simple shapes like table-tennis bats, cut out of available cardboard. Or cardboard shapes attached to 50cm rules.</p> <p>In pairs, challenge children to devise a simple code for a game of 'Simon says' (see the attached sheet) and play it in the classroom, school hall or outside.</p> <p>Is it best to have one or two paddles?</p>	<p><b>Classroom activity</b></p> <p><b>Lamps</b></p> <p>Have children use torches to signal. Torches can be waved (like a paddle) and also switched on and off.</p> <p>Is it easier to see the torch compared to their paddle?</p> <p>Are there any advantages over using paddles?</p> <p>Have children cover the torches with different coloured transparent plastic film. Does changing the colour of the light make a difference in how easy it is to see?</p>	<p><b>Working scientifically</b></p> <p>As an extension, paddles can be tested to see what is the most visible design. Does the size, colour or shape make a difference? What can be measured? How can results be presented and compared?</p> <p><b>Resources</b></p> <p>Coloured paper, aluminium foil, sellotape and 50cm rule.</p> <p>Torches and transparent coloured film.</p> <p>Simon Says code worksheet.</p> <p>Signals presentation.</p>

Create a code so that you can play a game of Simon Says using signal paddles.



Command	Signal position
Simon Says	
Left hand in the air	
Right hand in the air	
Left foot up	
Right foot up	

## **Signalling with levers and pulleys**

This design technology activity allows children to design, make and test levers and pulleys. They are challenged to make semaphore signals like the ones used on the railway.

Children use thick card to make a semaphore-style signal, as seen in the presentation.

<b>Session 2: Signalling with levers and pulleys</b>				<b>School and railway</b>
This session can be before or after the visit to the railway. During a visit, have children look for the semaphore-style signals (see the presentation) and how they are used to tell the driver when to stop and go. Children make and test signals from card.				
<b>Introduction</b>	<b>Activities</b>			<b>Follow up</b>
<p>Revisit the signals presentation if necessary.</p> <p>What do children understand about levers? Think about the position of the pivot point and how a push or pull can make the other side of the lever move up and down.</p> <p>Where have children seen levers? For example a see-saw in a playground.</p> <p>With signals on the railway, chains and wires are used to connect levers in the signal box to signal posts.</p> <p>If appropriate, introduce the idea of pulleys as ways of routing a string to a remote signal post.</p>	<p><b>At the railway</b></p> <p>Have children look for the semaphore-style signals. Always stay safely on the platform and designated paths.</p> <p>Can the children see when the signals tell the driver to stop and when to go?</p>	<p><b>Classroom activity</b></p> <p>Children use card, sellotape, paper fasteners and a wooden rod to make a semaphore signal (see attached worksheet).</p> <p><b>Safety</b></p> <p>A risk assessment should be produced for the activity. In this instance, consider the use of scissors and the sharp edges on paper fasteners.</p>	<p><b>Resources</b></p> <p>A thin wooden rod is used to move the sign. A cheap option is wooden kebab skewers. These have a sharp end which must be removed before the lesson.</p> <p>Card, scissors, sellotape, hole-punch and paper fasteners.</p> <p>Signals presentation.</p> <p>String, pulleys and axles from a design technology supplier for the extension activity.</p>	<p>The signal box at Ravenglass Railway contains a number of levers. Each is connected by a cable, routed around pulleys, to its signal post.</p> <p>Children can be challenged to use a long piece of string, and route it around a series of pulleys, to model the signals at the railway.</p> <p>This offers considerable challenge. Pulleys need to be secured on axles on a suitable base. The challenge could be carried out in a design technology club.</p>

Can you make a railway signal?



1 - Cut out and colour a piece of card for the signal.

3 - Use the hole-punch.  
Put a hole in the signal and a hole in the stand.

4 - Carefully use a paper fastener to attach the signal to the stand.

2 - Cut out a piece of card for the stand.

5 - Attach the control rod.  
Where will you need to attach it to be able to move the signal up and down?



## Signalling with circuits and lights

This activity sets a context for children to make and test electrical circuits containing batteries, switches, wires and lights. Red and green coloured lights can be made by covering bulbs with coloured transparent sweet wrapper plastic.

Coloured LEDs are available from design technology suppliers. If these are used, be sure to get ones of the appropriate voltage for your battery packs and also remember that to work, LEDs must be connected with the correct positive and negative polarity.

Use the plan view of the station and railway lines provided below. Copy and increase its size to A3 and have children route their circuits so that switches are in the signal box and the lights are over the signals. Using a small model train on the plan will allow children to practise changing the signals and moving the locomotive.

### Complexity and extension

This activity can be done on a range of levels and complexities.

**Initial**                      Signals control a train leaving Platform 1.

Challenge children to make two separate circuits. One with a green light and one with a red light. Each light can be switched on and off independently.

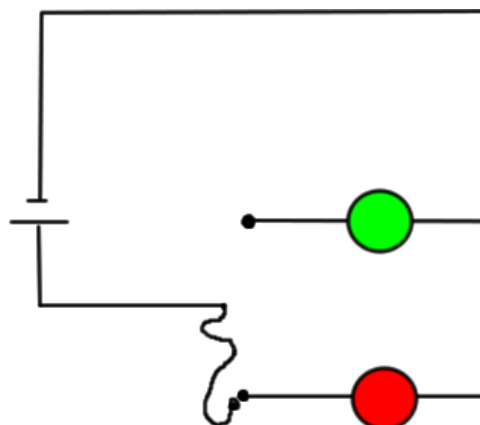
The green light tells the driver it is safe to leave the station.  
The red light tells the driver to stay at Platform 1.

Use the plan of the station to place the switches in the signal box and the lights at the end of Platform 1.

This configuration will work but poses a possible problem. The signal operator needs to turn one off and then the other on. If a mistake is made, both lights could be on (or off) at the same time.

**Progression** Have children devise and make a circuit so that if one light is on then the other must be off. This requires children to make a switch that can move between two arms of the circuit (see below). This switch can be made by moving a wire from one connector to the other.

Position the switch in the signal box and the lights at the end of Platform 1.



**Extension** Circuits can be further developed by having signals that allow a train to leave Platform 1 whilst the corresponding signals for Platform 2 are on red.

Signals for movement on and off the turntable can also be produced.

Challenges can also be used to give children an opportunity to practise their written comprehension. For example, by having children make circuits, operate the signals in sequence and move the model locomotive to replicate the movement of a train in the station.

*A train has come in to Platform 1 and dropped off all of its passengers. The locomotive detaches from the front and needs to move onto the turntable to turn around. It then moves past Platform 2 and out of the station. The locomotive then crosses back onto the original track using the crossover points. It then reverses back to attach to the carriages waiting at Platform 1. Once all the passengers are on the train it moves out of the station.*

Some children may recall that the guard signals to the driver when all of the passengers are safely on and off the train.

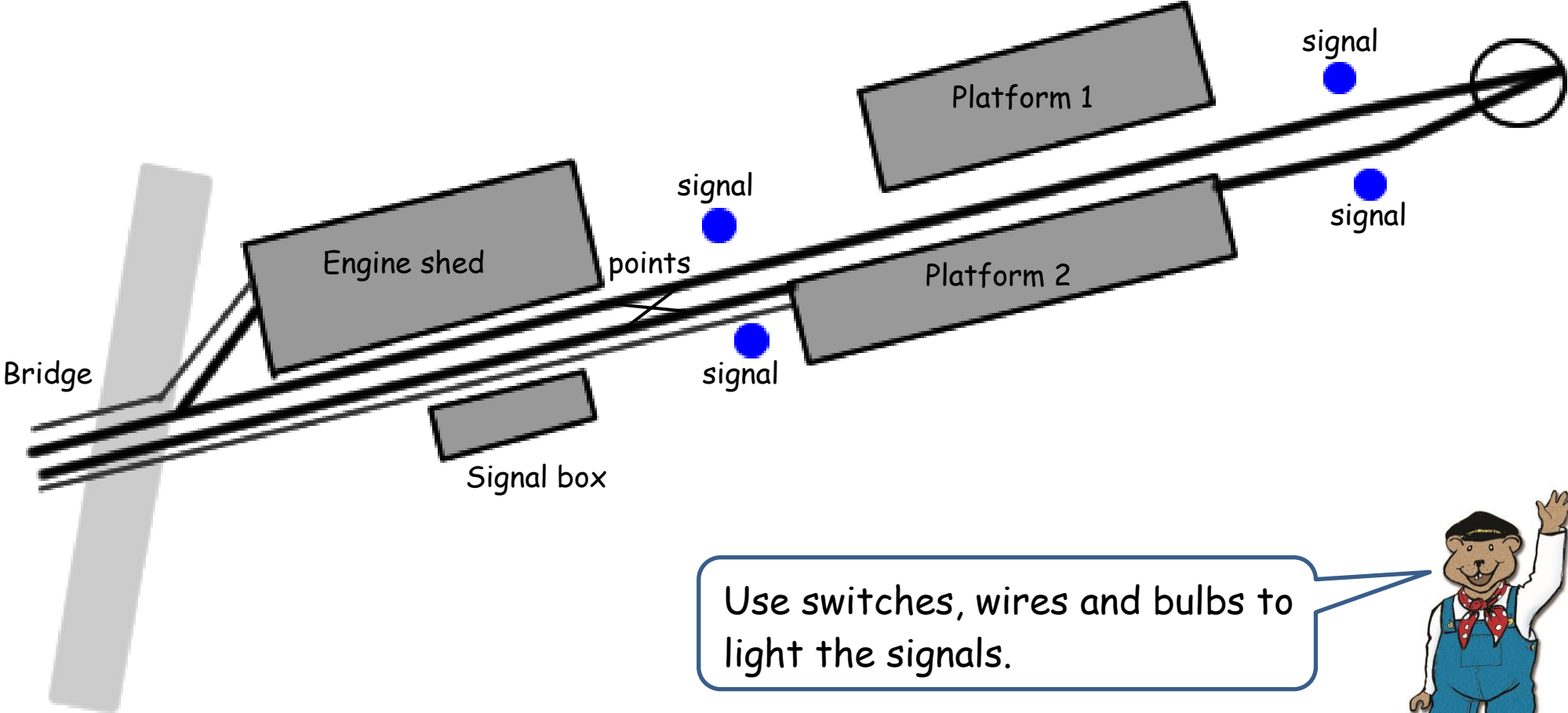
**Session 3: Signalling with circuits and lights****School and railway**

This session can be before or after the visit to the railway. Children design and make electric circuits containing switches and lights to signal to a locomotive driver and control its movements. A plan of the station is provided for children to lay-out their circuits from the signal box to signal posts.

Introduction	Activities			Follow up
<p>Review children's understanding of electric circuits to ensure they remember the use of switches, lights, wires and batteries.</p> <p>Set the context in which they will be making electric circuits to operate light signals to drivers to control the movement of locomotives in and out of the station.</p>	<p><b>At the railway</b></p> <p>Have children observe the movement of the locomotives in and out of the station. How are their movements controlled? How are engines turned around using the turntable?</p> <p><b>Safety</b></p> <p>A risk assessment should be produced for the activity. In this instance, remind children to remain safe whilst at the station and not to move away from designated paths and platforms.</p>	<p><b>Classroom activity</b></p> <p>Children make a series of electric circuits (see details above) to control the movement of a locomotive in and out of the station.</p>	<p><b>Resources</b></p> <p>Copy the plan of the station and increase its size to A3 to provide a template. Children should route their wires so that switches are in the signal box and lights are at the appropriate signal posts.</p> <p>Wires, connectors, batteries, lamps (or LEDs), red and green coloured transparent sweet wrapper, switches.</p>	<p>Challenge children to make a diagrammatic representation of their circuits. Such diagrams can move from realistic pictures to circuit diagrams with symbols for the components.</p> <p>Have children write a set of instructions for the movement of a locomotive in and out of the station. These instructions are called 'standard operating procedures' and ensure the safe operation of the railway.</p>



# Plan of Ravenglass and Eskdale Railway



Use switches, wires and bulbs to light the signals.



