Power Changers

STEM Lessons for Primary Schools in the UK and Ireland

Learning from the Past

sse | For a better world of energy

CONTENTS

INTRODUCTION **3**
KS1 LEARNING FROM THE PAST **4**
PROBLEMS AND SOLUTIONS 5
ORDERING SOLUTIONS 9
CLEANING UP! 13
APPENDIX **18**
LESSON MATERIALS 18

INTRODUCTION

Welcome to SSE's 'Power Changers' suite of STEM lessons for primary aged pupils across the United Kingdom and Ireland.

We are delighted to align our primary school suite with some of the key elements which our future workforce and consumers can influence and shape on our journey to supporting net zero. We hope these vibrant lessons help pupils understand their role and the exciting possibilities available to them in their future. As an inclusive employer, SSE understands the benefits of inspiring everyone to consider the energy sector and the wide range of green skills we will require.

The change of the scale and nature needed to achieve net zero brings social consequences, impacting people – employees, consumers, communities, suppliers, and wider society – in many different ways. Our Just Transition Strategy provides a framework of 20 principles, helping to guide our decision-making and influence greater fairness for those impacted by the decline of high-carbon economic activity and increase the opportunities of climate action.

We know that STEM-based education for pupils at the primary phase is incredibly important. The lessons found in this booklet teach children much more than science, technology, engineering and mathematical concepts; they also focus on hands-on learning and real-world application, building the essential skills such as Problem Solving and Creativity in order for them to effectively apply these concepts.

We truly hope you will enjoy delivering these interactive lessons and together we can inspire a whole new generation of innovative and inquiring minds.

Sam Greer, Education & Employability Manager, SSE

Facilitators should be aware of the following pieces of information before delivering these lessons:

All lessons in this suite are designed to be delivered in a normal classroom setting, although facilitators could adapt them for use in an assembly.

Each lesson plan contains information about how it can be adapted to suit pupils with SEND provision.

Each lesson plan builds one essential skill step from the Skills Builder Framework for essential skills. This Framework provides a common language for defining and developing eight essential skills. You can explore the Framework here.

Lesson slide decks, worksheets and knowledge organisers for each lesson can all be found in the appendix ready for download at SSE's STEM website.

The lessons can be delivered by an in-class teacher or delivered by SSE volunteers. To contact SSE about this opportunity, please email stem@sse.com. It is suggested that if only one lesson is to be delivered, that this is the first lesson in the topic.

Please share your pupils' work on social media, tagging @SSE on Twitter or @SSEplc on Instagram and using the #STEMatSSE tag.

KS1 LEARNING FROM THE PAST

AGE 5 – 7 YEARS

Title	Length	Subject Links	Essential Skills
Problems and Solutions	1 hour	English / Maths / History	**Step 4** – I explore problems by creating different possible solutions
Ordering Solutions	1 hour	English / Maths / History	**Step 4** – I generate ideas to improve something
Cleaning Up!	1 hour	English / Maths / History	**Step 2** – I imagine different situations and can bring them to life in different ways

OVERVIEW OF LESSON SET

The 'Learning from the Past' lesson set contains three lessons that introduce pupils to the idea of solving problems using devices. Pupils will look in more detail about different technological developments throughout history and the reasons for these, exploring the fact that inventors aim to make things cleaner, safer and more efficient. They'll then progress to develop an awareness of SSE's net zero project and their work in increasing the availability of clean, safe, efficient energy.

OVERVIEW OF RESOURCES REQUIRED

Problems and Solutions	Interactive whiteboard Knowledge organiser Scissors & glue sticks Worksheets provided
Ordering Solutions	Interactive whiteboard Knowledge organiser Worksheets provided
Cleaning Up!	Interactive whiteboard Knowledge organiser Worksheets provided

Delivery materials can be found in the appendix.

Remember to share your pupils' work with SSE and schools across the country on social media!

@SSE

@SSEplc

#STEMatSSE

Would you like a volunteer at SSE to facilitate these lessons? Contact **stem@sse.com** to request delivery support. More information about SSE's Just Transition programme can be found at https://careers.sse.com/homepage

PROBLEMS AND SOLUTIONS

Problems and solutions	Key Stage 1 (Year 1-2)	English, Maths, History

Curriculum links

English NC

English

Ask relevant questions to extend their understanding and knowledge
Discussing word meanings, linking new meanings to those already known
Rules for effective discussions agreed with and demonstrated for pupils
Use expanded noun phrases to describe and specify

Maths

Recognise and use language relating to dates including years
Sequence events in chronological order using language (for example, before and after)

History

Understand historical concepts such as similarity, difference and significance and use them to make connections, draw contrasts, analyse trends
Develop an awareness of the past, using common words and phrases to the passing of time
Identify similarities and differences between ways of life in different periods
Taught about changes within living memory. Where appropriate, these should be used to reveal aspects of change in national life.

Scottish NC

Health and wellbeing

Recognise how important it is to behave in a way that can have a positive effect on other people and the environment

Languages

Develop their ability to communicate their thoughts and feelings and respond to those of other people
Develop skills in listening and talking
Use language well to communicate ideas
Exercise their intellectual curiosity by questioning and developing their understanding
To enhance their understanding of their own culture
To extend their skills and listening and talking

Mathematics

Have an understanding of the application of mathematics, its impact on our society past and present, and its potential for the future
Develop their knowledge and understanding of issues such as sustainability

Social studies

Broaden their understanding of the world by learning about human activities and achievements in the past and present

Technologies

Develop an understanding of technologies and their impact on society -in the past, present and future

Welsh Curriculum

Humanities
Science and technology
Languages, literacy and communication
Mathematics and numeracy
Learning about local, national and international contexts

Northern Irish Curriculum

Languages and literacy
Mathematics and numeracy
The world around us
Personal development and mutual understanding

Republic of Ireland Curriculum

Mathematics
Social environment and scientific education
Primary language
Social, personal and health education

Big Picture:

This is the first lesson in a three-lesson teaching sequence. In this lesson, the children will understand what is meant by the past and will discuss it in the context of their families. They will be introduced to the idea of problems and solutions and that a device is a solution to a problem. The children will explore a range of devices and objects used in the past and the present and will discuss how these items are solving problems. They will sequence objects with a similar function and discuss why they have changed. In the lessons that follow, the children will look in more detail about different technological developments and the reasons for these, exploring the fact that inventors aim to make things cleaner, safer and more efficient. They then progress to develop an awareness of SSE's net zero project and their work in increasing the availability of clean, safe, efficient energy.

Lesson Objective:

'To understand what is meant by 'the past.'

'To explain how and why technology has changed over time.'

'To explore problems by creating different solutions (Problem Solving - Step 4)'

Assessment:

Through discussion, children will show their existing knowledge of items in the home.

The activity will show their understanding of how items form solutions to problems and children will also explain / show how they are good solutions.

Children will also be able to demonstrate any connections made in their learning through the comparison grid discussion task at the end of the session.

Resources:

Facilitators will need to display 'lesson 1' PowerPoint on a large display screen.

All children can see the knowledge organiser provided and copies should be provided for specific children who would benefit from their own copy.

Scissors and glue sticks.

Resources will need printing so each child has their own copy of the most appropriate resources.

Lesson Plan

Key vocabulary for the lesson:

Past, present, future, problem, solution, object, device, home, invention, technology, before, after, earlier, later, compare, similarity, difference, Problem-Solving

Additional Adult Role:

Initially, additional adults should support children with their paired discussion, particularly children who may need support with the vocabulary focused on the home / kitchen. Give support to children who may need additional help when recording in the third part of the task (why it is a good solution) as some may need to record through drawing an image or will need help reading and recording the relevant vocabulary.

Timing	Facilitator	Pupil
10 mins	**Do Now:** Slide 3: Show an image from the past showing someone's home. What is this a picture of? What can you see? How is different to your home?	Children to discuss what they can see in the image of the kitchen with their partner, using their existing knowledge of what would be found in a modern-day kitchen to support their discussion.
Check	This activity will show the starting point in terms of vocabulary, background knowledge and awareness of changes. When the children have had time to share their ideas with a partner, ask them for suggestions to see if the children are able to devise sentences comparing the past with the present. See if the children are able to see the differences and can they see devices such as the drying rack and think about what might be used instead today.	
10 mins	**Introduction**: Slide 4: Discuss the key words with the children: problem, solution and past/present. Slide 5: Using the image, say that this is a picture from the past. The past is a time that has gone by and has already happened. The past could be this morning or it could be a time before any of us were born. Take ideas from the children and discuss any misconceptions. Explain that today, we are going to be thinking about the past from the time that our parents and even our grandparents might have been very young. Slide 6: Explain that there are many objects and devices that we see every day which solve a problem. Examine the key vocabulary with the children, reading one word at a time and asking them to talk to their partner about its meaning. Slide 7:	Can you tell your partner some things you know have happened in the past? Was this a long time ago? See if the children are able to use time-related vocabulary to support their explanations. Children to talk to partner and then share with facilitator what they think the following words mean: Problem Solution The past The present

	Reveal definition for Problem Solving: the ability to find a solution to a situation of challenge Explain that throughout the lesson, children will be working on Step 4 of Problem Solving: exploring problems by creating different possible solutions. Slide 8: Take ideas from the children and clarify the meanings. Reinforce the vocabulary through using the two very familiar examples. Explain to the children what the problem is and then ask them to give an idea for what the solution might be.	Children to share their ideas for what the solution to the problem could be when: They are feeling poorly They see someone doing something wrong
Check	What makes a good solution to a problem? Are there other examples of problems you have faced? Did you come up with a solution? Is there normally only one solution to a problem? Can you think of an example of a problem where there are lots of possible solutions? Are all solutions sensible?	
10 mins	**Provide Model:** Slide 9: Discuss the 'big question' and see if the children have initial thoughts on this. An example could be used that is familiar to them such as the way we travel to school. Slide 10: Show image of a problem that people face in their homes – wet clothes.	Record with the children Problem (wet clothes) Solution (tumble dryer) Why is this a helpful device? (it is quick and takes up little space)
Check	Ask the children if they can think of any other devices that solve problems in the home. Discuss with the children what the problem would be and why the solution is a helpful device. The facilitator may wish to go further with this discussion and ask the children if there are any other items in the home that is another solution to a given problem e.g. heating food – microwave, oven, hob.	
20 mins	**Pupil Practise:** Slide 11: Children given a worksheet with structure shown on it for recording their ideas. Separate sheet including a number of problems commonly found in the home. Additional resource for children who need to also see the solution. Key vocabulary shown on the resource to support word choices e.g. dry, warm, heat, wash	Children to cut out their chosen problem and then add their solution to the problem, referring to the object / device found in the home. Finally, add their idea for why this device is a good solution to the problem. Ext: Children can then go further with this to consider a way to improve on of the solutions.
Check	Throughout this time, make sure children are using the resources correctly and using the terms problem and solution. Recognise where children are exploring problems by thinking of different solutions.	
10 mins	**Review of Learning:** Slide 12: Show children the slide showing three of the 'solutions' from the independent task: fridge freezer, radiator and dishwasher.	

	Tell the children that they need to think about these items and think of ways that two of them or all three of them are similar and how two or all three of them might also be different.	Children to discuss their ideas with their partner(s) focusing on areas such as: Appearance How it works Speed

Check

The review of learning will show children's understanding of the features of the devices used in the home and will possibly start to make links which is important in the next lessons where children will start to see that inventions are made to make things cleaner, safer and more efficient.

Once the children have discussed their ideas, ask them to feedback and, where possible, draw out ideas around how they work (i.e. electricity use) and how they are similar to each other.

Slide 13:

Ask the children how they used their problem-solving skills. Open a class discussion around the questions on screen. This will help children understand and communicate the skill they have built alongside their knowledge.

Considerations for inclusive and adaptive teaching:

Pre-teach is important for this lesson for children who do not have the vocabulary needed to discuss the home. This could be done through accessing an available home corner or through using the images from the lesson materials if that is not possible.

Pupils learning EAL or with SEND may benefit from a pre-teach of terminology using the knowledge organiser for this lesson too.

The lesson resources should be printed based on level of need. Most children will be able to use resource sheet 1 and 2 to complete the task and will have the key vocabulary for support. Some children may be able to complete the task with sheet 1 only.

For the third part of each element of the pupil practise task, it may be more appropriate for some children to record their ideas as a picture or may need guidance in selecting the most relevant word from the key vocabulary prompt.

ORDERING SOLUTIONS

Ordering solutions	Key Stage 1 (Year 1-2)	English, Maths, History

Curriculum Links

English NC

English

Ask relevant questions to extend their understanding and knowledge
Discussing word meanings, linking new meanings to those already known
Rules for effective discussions agreed with and demonstrated for pupils
Use expanded noun phrases to describe and specify

Maths

Recognise and use language relating to dates including years
Sequence events in chronological order using language (for example, before and after)

History

Understand historical concepts such as similarity, difference and significance and use them to make connections, draw contrasts, analyse trends
Develop an awareness of the past, using common words and phrases to the passing of time
Identify similarities and differences between ways of life in different periods
Taught about changes within living memory. Where appropriate, these should be used to reveal aspects of change in national life.

Scottish NC descriptors

Health and wellbeing

Recognise how important it is to behave in a way that can have a positive effect on other people and the environment

Languages

Develop their ability to communicate their thoughts and feelings and respond to those of other people
Develop skills in listening and talking
Use language well to communicate ideas
Exercise their intellectual curiosity by questioning and developing their understanding
To enhance their understanding of their own culture
To extend their skills and listening and talking

Mathematics

Have an understanding of the application of mathematics, its impact on our society past and present, and its potential for the future
Develop their knowledge and understanding of issues such as sustainability

Social studies

Broaden their understanding of the world by learning about human activities and achievements in the past and present

Technologies

Develop an understanding of technologies and their impact on society -in the past, present and future

Welsh Curriculum

Humanities
Science and technology
Languages, literacy and communication
Mathematics and numeracy
Learning about local, national and international contexts

Northern Irish Curriculum

Languages and literacy
Mathematics and numeracy
The world around us
Personal development and mutual understanding

Republic of Ireland Curriculum

Mathematics
Social environment and scientific education
Primary language
Social, personal and health education

Big Picture:

This is the second lesson of three and builds on the previous lesson where children were introduced to the concept of the past and how certain objects solve problems. They were also introduced to the idea that these solutions are updated and improved upon. In this lesson, children look in greater detail at a range of technologies and how there are several devices that aim to solve the same problem. They explore how these devices change over time and through observation, order them from the earliest to the most recent. They then go deeper with this concept and they will identify what these changes have in common, introducing them to the idea that changes are made to make things cleaner, safer and more efficient. This concept is developed further in the final lesson where children will start to apply this to SSE and their net zero project, aiming to increase the UK's access to clean, safe, efficient energy.

Lesson Objective:

'To explore why technology changes over time.'

'To understand how something can be improved by generating ideas (Creativity - Step 4)'

Assessment:

Children will show their ability to sequence different inventions and will show (either written or verbal) how the different solutions change.

The pupil practise task will show how well children have understood that inventions are aimed at making things cleaner, safer and more efficient.

Resources:

Facilitators will need to display 'lesson 2' PowerPoint on a large display screen.

All children should be able to see the knowledge organiser provided for the lesson and copies should be provided for specific children who would benefit from their own copy.

1x sequencing resource per child – some with written element, others able to use tick box version.

Lesson Plan

Key vocabulary for the lesson:

Past, present, future, problem, solution, object, device, home, invention, technology, before, after, earlier, later, compare, similarity, difference, sequence, cleaner, safer, efficient, creativity

Additional Adult Role:

Ensure children are using their knowledge organisers to support the task as this will particularly help the children when ticking / writing their answers. Reinforce the definitions for cleaner, safer and more efficient and support children through making sure they use this vocabulary in their verbal and (where appropriate) written responses.

Timing	Facilitator	Pupil
5 mins	**Do Now:** Slide 3: Start off with a quickfire task showing a device from the previous session. Children to use the sentence starters to explain what it is, what problem it solves and why it is a good solution. Model this with the first one for the children: the car wash.	Slide 4 and 5 Children then to do the other two examples with their partner, doing one of the examples each (washing machine and radiator).
Check	After each example is discussed with the children, choose a pair to say what they came up with and allow other children to add further detail. Check to see if children have remembered that each of the objects found in the home solve problems which are often linked to size, speed and how easy it is. In this lesson, children will be developing an awareness of the main reasons for new solutions being found: to make them cleaner, safer and more efficient. Children may start to show some knowledge of this in this task.	
10 mins	**Introduction**: Slide 6: Explain the key words used in this lesson: safer, cleaner, efficient. Slide 7: Show the slide asking What is a device? Show images from the slideshow and ask the children what they think a device is and which ones are devices. Common misconception will be that they are drawn to the electronic items however all are devices. Explain that a device is a thing made or adapted for a particular purpose. It is likely to be mechanical or electronic equipment. Therefore, it is all of the images shown on the slide. Slide 8: Show the slide ‘same/different because… Ask the children to speak to a partner to compare the images shown on the slide, thinking about similarities	Children to talk in pairs before sharing ideas with the whole class. Children discuss the three images in the comparison grid shown on the slide: a fire with a cooking pot over, an oven, a

	and differences: comparing an open fire cooking pot, an oven and a microwave. Slide 9: Show the big question: why are new solutions found to the same problems? Support children to discuss this in the context of the fire with a cooking pot over, oven, and microwave. Use the questions below to assess pupil understanding at this point. Slide 10: Introduce Creativity as the skill used to think of new ideas. Explain that throughout the lesson, children will be building their understanding of how ideas can be generated to improve something.	microwave. Children to discuss how they are similar / different. Volunteers to share their thinking with the whole class.
Check	Which of the pictures show what most of us use to cook every day (microwave and oven)? Why is a microwave or an oven used instead of the fire? Can you think why some people use microwaves to heat up food instead of an oven? What does it mean to improve something? How can we come up with lots of ideas?	
15 mins	**Provide Model:** Slide 11: Show the three images of ways of cooking. Explain that these were used in the past and some are used in the present. Which of these was used first / earliest? How do we know? Move the images into the correct place on the structure. Ask the children what the problem would be if we still cooked like the earliest example. Repeat for the traditional oven and the microwave. With each one of the first two, identify the problem with them and why, therefore, the next one was developed.	Children to suggest why the pot over the fire would be difficult to use now. Facilitator to click the slide and through discussion, introduce the idea that it is cleaner, safer and more efficient.
Check	Make sure the children are clear on the idea that a microwave is cleaner, safer and more efficient. The facilitator may need to explain that ovens are still used however microwaves were invented after ovens because people saw problems with ovens.	
20 mins	**Pupil Practise:** Children will choose a selection of three images of items that are familiar to them. All of them are items that eventually rely on electricity. They will cut them out and place them onto the structure	Children to stick the three items into the correct order on their sheets and then explain what has changed in the different solutions using the key words cleaner, safer and more efficient. Repeat with a second and possibly third example if there is time. Children to use key vocabulary shown on the sheet to support with this. EXT: can you design your own using an example that is not in the kitchen? Children draw this using a blank format.
Check	Monitor children to ensure they are sequencing the items correctly. If not, ask the child to explain why they are ordering in this way as this may identify a misconception or it could be that the instructions need repeating. Refer to the key vocabulary throughout so children are encouraged to use this in their written responses.	

10 mins	**Review of Learning:** Slide 13: Show all the images (9 in total) on the slide and ask the children to find the related three. Which is the one that is used today out of the three? Why has it been developed this way? Ensure children have referred to the key words of cleaner, safer, more efficient. Slide 14: Explain that SSE are a company who are changing the way we get our electricity to power many of our devices in our homes. Show the YouTube clip of SSE renewable energy so children are able to see examples of this in action: https://youtu.be/RNNa8Kqbabo Slide 14: Finally, show three ways of generating power – coal, gas and hydro. Are children able to sequence these and explain why hydro is the most modern and why? Focus discussion around cleaner, safer, more efficient.
Check	The review of learning will show if children have understood that devices are invented to make them cleaner, safer and more efficient. Are children able to link this to the ways of generating electricity? Slide 15: Ask the children what problems SSE are trying to solve when it comes to energy. Ask how Creativity how can be used to solve these types of problems. Guide them towards understanding that creativity is about generating ideas to, in this case, make something better. This will help children understand and communicate the skill they have focussed on alongside their knowledge.

Considerations for inclusive and adaptive teaching:

Lesson resources adapted with some children required to write a sentence explaining the change between devices. Others are required to sequence the events and circle the most appropriate word. They then will explain their decision verbally. Facilitators could adapt the lesson further by only giving the blank structure and the pictures only with no need to record based on the key words given.

Children can deepen their understanding by completing the additional challenge of creating their own 3 device example with no prompts given. This must be from something not found in a kitchen.

Children learning EAL or those with SEND may benefit from a pre-teach of key vocabulary using the knowledge organiser resource to help them access the language needed for the session.

CLEANING UP!

Cleaning up!	Key Stage 1 (Year 1-2)	English, Maths, History

Curriculum Links

English NC

English

Ask relevant questions to extend their understanding and knowledge
Discussing word meanings, linking new meanings to those already known
Rules for effective discussions agreed with and demonstrated for pupils
Use expanded noun phrases to describe and specify

Maths

Recognise and use language relating to dates including years
Sequence events in chronological order using language (for example, before and after)

History

Understand historical concepts such as similarity, difference and significance and use them to make connections, draw contrasts, analyse trends
Develop an awareness of the past, using common words and phrases to the passing of time
Identify similarities and differences between ways of life in different periods
Taught about changes within living memory. Where appropriate, these should be used to reveal aspects of change in national life.

Scottish NC

Health and wellbeing

Recognise how important it is to behave in a way that can have a positive effect on other people and the environment

Languages

Develop their ability to communicate their thoughts and feelings and respond to those of other people
Develop skills in listening and talking
Use language well to communicate ideas
Exercise their intellectual curiosity by questioning and developing their understanding
To enhance their understanding of their own culture
To extend their skills and listening and talking

Mathematics

Have an understanding of the application of mathematics, its impact on our society past and present, and its potential for the future
Develop their knowledge and understanding of issues such as sustainability

Social studies

Broaden their understanding of the world by learning about human activities and achievements in the past and present

Technologies

Develop an understanding of technologies and their impact on society -in the past, present and future

Welsh Curriculum

Humanities
Science and technology
Languages, literacy and communication
Mathematics and numeracy
Learning about local, national and international contexts

Northern Irish Curriculum

Languages and literacy
Mathematics and numeracy
The world around us
Personal development and mutual understanding

Republic of Ireland Curriculum

Mathematics
Social environment and scientific education
Primary language
Social, personal and health education

Big Picture:

This is the final lesson in the teaching sequence. In the previous two sessions, children have gained an understanding of the past and how our homes have changed over time. They have looked at examples of problems people face in their homes and how different innovations solved these problems in different ways, often leading to another solution. The children have had time focused on the important message that most technological improvements happen because there is an aim to make things cleaner, safer and more efficient. The previous lesson ended looking at examples of sources of energy and they were introduced to SSE. In this lesson, children will build on their awareness of the importance to make things cleaner, safer and more efficient and will look at the work of SSE, talking about how electricity is generated and how renewable energy is better for our planet. Children will then start thinking about a future that is cleaner, safer and more efficient and will present what the world would be like if we achieved this.

Lesson Objective:

‘To understand how energy is generated to be safer, cleaner and more efficient.’

‘To imagine different situations and bring them to life in different ways (Creativity – Step 2)

Assessment:

Children will show their understanding of the reasons for technological advances (cleaner, safer, more efficient) in the initial task.

Children will use discussion to share their feelings on the changes to the ways electricity is created. This will also help show their level of understanding of how capturing the power of wind and water can create energy that we can use.

Resources:

Facilitators will need to display ‘lesson 3’ PowerPoint on a large display screen.

All children should be able to see the knowledge organiser provided for the lesson and copies should be provided for specific children who would benefit from their own copy.

Children will need a copy of the most appropriate resource sheet for them to record their ideas.

The crystal ball activity will demonstrate children's knowledge that a number of areas of life will continue to modernise. The facilitator can look to see if the children are able to give a number of ideas which show their awareness of how things should develop in order to help the planet.

Lesson Plan

Key vocabulary for the lesson:

Past, present, future, problem, solution, object, device, home, invention, technology, before, after, earlier, later, compare, similarity, difference, sequence, cleaner, safer, efficient, renewable, energy, wind turbine, hydroelectricity, capture, creativity

Additional Adult Role:

Additional adults need to support children with accessing the vocabulary, particularly in the initial tasks. Supporting their discussion about innovations that are cleaner, safer and more efficient will prompt the children in their pupil practise task later in the session.

During the pupil practise activity, any additional adults should be used to either guide a group with their ideas and these children should be chosen based on the levels of understanding shown in the initial tasks and / or previous lessons. Adults may prefer to use an enlarged example of the crystal ball, recording the shared ideas of the group. Either the children or the adult could do the recording.

Timing	Facilitator	Pupil
5 mins	**Do Now:** Slide 3: Show statement with gaps shown within: New technology is created to become s_____, cl_____ and m___ e_____. Read the statement to the children and ask if they can help fill in the gaps. (Answer: smarter, cleaner and more efficient)	Ask the children to verbally complete the statement and then come up with examples from their previous learning and any more from their own knowledge.
Check	Give the children an opportunity to speak to a partner to complete the gaps and then take ideas from them to complete them. See if the children are able to see the connection between these words and the big question.	
10 mins	**Introduction**: Slide 4: Share the big question and ask children what their answer would be to this question? Slide 5: Introduce Creativity as the skill used to think of new ideas.	

	Explain that throughout the lesson, children will be imagining different situations and can bring them to life in different ways. Slide 6: Show image showing a lot of pollution. Focus on the power station in the image. Does this look safe or clean to you? Explain to the children that the power station burns coal to create electricity. Tell them that this works well but the problem is it creates a lot of pollution and we will one day run out of coal and it would take millions of years for more to form. Tell the children that you are going to show them a short film about the work of SSE. Tell the children that they need to look for as many ways where SSE are making things safer, cleaner and more efficient. Show the SSE video We Power Change - YouTube. Slide 8: Share the key words used in this lesson: energy resources, renewable and hydro/wind/solar.	When the film clip finishes, children to give suggestions of what they could see that was safer, cleaner or more efficient than the first image we saw.
Check	How does the image make you feel? Why? What is positive about the work of SSE? Why is this better than the first image? How does energy get from the wind turbines or hydroelectric plants to our homes? What does imagination mean? How can we bring our ideas to life?	
15 mins	**Provide Model:** Slide 9: Show structure of 'talk to the aliens', through which pupils will clearly explain using sentence stems. Model the use of this using coal power as an example. This is a POWER STATION. It uses COAL to create electricity. It is good because it…PRODUCES THE POWER WE NEED The problem I see is…IT CAUSES A LOT OF AIR POLLUTION. Tell the children that all ways of creating power have limitations however using renewable energy is far more efficient as we will not run out of these energy sources. Then look at a number of images from the previous lessons and ask the children to consider what the future might look like, drawing upon the images that are most relevant. Slide 12:	Through questioning, ask the children to explain why they think it isn't safe, linking this where you can to the planet, animals, humans etc. Repeat with clean and efficient. Slide 8 and 9: Repeat talk to the aliens using wind turbines as an example and children to complete this with their partners. At this stage, it is important the children consider questions like 'what if there was no wind'. Repeat for hydroelectricity.

Show the crystal ball outline on the slide. Explain to the children that they are going to draw what they would love the future to look like. Ask them to consider what would go in their crystal ball – explain that they can show it in any way they wish.

Click to reveal the prompts shown and ask the children to think about them. The facilitator may wish to get the children to close their eyes and imagine it or to share each of their ideas with a partner.

Check

When children have had time to think about their ideas, ask them to suggest what they had as their main ideas.

Ask the children to think about how they would record this – would they draw a picture, write the word, include it in a picture with several other ideas? Recognise that children are using their Creativity skills to bring to life what they imagine.

20 mins

Pupil Practise:

Keep displaying slide 12:

Distribute the sheets and ask children to record their ideas onto their crystal ball. Tell them that they will present their ideas to others at the end of the session.

Recognise that children are using their Creativity skills to bring to life what they imagine.

Children to complete their 'crystal ball of hope' for the future. Within it, they need to draw what they want the future to look like to make sure it is clean, safe and efficient.

Optional: Underneath this, children to write about what they have drawn. This may be dependent on time available and also the writing ability of the child. Children could be encouraged to go further with this, explaining why they have made their choices.

Check

It is important that the facilitator circulates around the children throughout the pupil practise and discusses their ideas to gain an understanding of their drawings as this is a good assessment opportunity. Consider if children are keeping their ideas fixed on one thing and if there are any parts of the prompts from slide that they are not including in their drawings / writing. If so, discuss with children how they can get other ideas into their crystal ball e.g. if there is a wind turbine, what would that power?

10 mins

Review of Learning:

Ask children to present their work to their partner. Tell them to focus on what they have in their picture and why they have chosen this.

In their presentations, ask children to include how they have used Creativity.

Children present their work to a partner, small group or the full class.

Slide 13:

Children then to give the other child verbal feedback using some of the prompts shown on the slide:

I like your idea because…

I thought it was an intelligent idea because…

Have you thought about…

Check

Consider whether the children are using the terms cleaner, safer or more efficient (or similar) in their justifications for the choices made in their crystal ball. Are children using appropriate reasons for their choices?

Slide 14:

Ask the children how they used their Creativity skills. Open a class discussion around the questions on screen. This will help children understand and communicate the skill they have built alongside their knowledge.

Considerations for inclusive and adaptive teaching:

The crystal ball activity is open-ended in order to allow children to adapt the way they record their ideas. To give children the opportunity to write, an adapted resource is available to allow them to do this.

An enlarged crystal ball sheet could be used with all children or with specific groups of children so they can show their level of understanding without recording being a barrier. It can instead by a collaborative discussion task led by the facilitator and / or an additional adult.

Vocabulary is available on the resource for children to refer to.

Use the knowledge organiser to pre-teach key vocabulary and concepts to children with SEND or those learning EAL.

APPENDIX

LESSON MATERIALS

You can access all lesson materials, including PowerPoint presentations, worksheets, and knowledge organisers at SSE's careers website below or by scanning the QR code.

https://careers.sse.com/sse-stem-primary