

**East Renfrewshire Council: Education Department
Practitioner Moderation Template**

Prior to the moderation exercise, please complete the following information and submit it to your facilitator with assessment evidence from one learner that you judge to have successfully attained the Es and Os.

School Code	Z
Practitioner Code	Z13
Curriculum Area(s)	Literacy, Science, Technology
Level	Second
Stage(s)	P7
Specific subject (if applicable)	Renewable and Non Renewable Energy

Experiences and Outcomes:

Through exploring non renewable energy sources, I can describe how they are used in Scotland today and express an informed view on the implications for their future use. SCN 2-04b

I can investigate the use and development of renewable and sustainable energy to gain an awareness of their growing in importance in Scotland or beyond. TCH 2-02b

By considering the type of text I am creating, I can select ideas and relevant information, organise these in an appropriate way for my purpose and use suitable vocabulary for my audience. LIT 2-26a

Learning Intentions:

To categorise energy sources

To identify advantages and disadvantages of different sources of energy.

To describe how non-renewable sources are used in Scotland today.

To give an opinion about the non-renewable sources and implications for future use

To identify features of a leaflet to create my own.

To select information from my notes and organise these under relevant headings and sections

To use the correct subject terminology

To interpret information from a table

To place icons on a map

Success Criteria:

Activity 1: (Non-renewable or Renewable?)

Success Criteria written in conjunction with the children.

I can:

- name each of the energy sources.
- write the name under each of the energy sources.
- decide if each energy source is renewable or non-renewable.
- write renewable (R) or non-renewable (NR) under each picture.
- place each picture in the correct category.
- check and stick.

Success Criteria continued :

Activity 2 (Designing a Leaflet)

See **Success Criteria for Leaflet Design** which were shared with the pupils at all stages of the task and used for both self and peer assessment purposes. Teacher feedback was then added and attached to the finished piece of work.

Activity 3 (A Sample of Power Stations in Scotland)

See **Success Criteria for 'A Sample of Power Stations in Scotland'** activity which were shared with the pupils at all stages of the task and used for the purpose of self-assessment. Teacher feedback was then added and attached to the finished piece of work.

Briefly outline the context and range of quality learning experiences that have been provided making reference to the chosen design principles.

Coherence: There are clear links between the E's and O's in Sciences and Technologies. Linking learning in these curricular areas with the Literacy E and O chosen helped to increase pupil engagement with the subject matter.

Relevance: Pupils were very aware of the importance of the subject matter as some of the information was gathered from video clips, newspaper articles and Scottish Government websites and was linked to their present and future lives. The pupils also shared information that they had seen and heard on the television and radio.

Challenge and Enjoyment: Pupils found the active learning opportunities throughout the tasks challenging and engaging and they were motivated to find out the necessary information, discuss their ideas with peers and share them in leaflet form. This also allowed each pupil to achieve his or her potential and demonstrate some individual creativity.

Depth: Throughout their learning the pupils have developed and demonstrated depth in their level of understanding of this subject matter.

Personalisation and Choice: A class discussion about the various ways that the pupils could showcase their information resulted in them deciding on a leaflet and allowed them some pupil choice. The layout of the leaflet was then discussed as a class and a common format was agreed so that pupils had opportunities to show their individuality and creativity whilst being supported to ensure that they could produce a successful and meaningful piece of work.

Record the range of assessment evidence that was gathered to meet the success criteria (Say, Write, Make, and Do) considering breadth, challenge and application.

Activity 1:

Do – Non-renewable or Renewable?

Pupils sort eleven symbols of energy sources into non-renewable and renewable.

Activity 2:

Write – Designing a Leaflet

Pupils use research notes to select relevant information about the advantages and disadvantages of non-renewable and renewable energy sources.

Pupils use research notes to select relevant information about the use of renewable energy sources in Scotland.

Pupils use research notes to help them to form their own opinion about future energy use in Scotland.

Activity 3:

Do – A Sample of Power Stations in Scotland

Pupils interpret a table about the location of renewable and non-renewable power stations in Scotland.

Pupils place corresponding energy symbols correctly on a map of Scotland.

Did the learner successfully attain the outcomes? Yes

Briefly outline the oral/written feedback given to the pupil on progress and next steps, referring to the learning intention and success criteria.

Activity 1:

Do – Non-renewable or Renewable?

See teacher feedback written on pupil's piece of work.

Activity 2:

Write – Designing a Leaflet

See teacher and peer feedback written on Success Criteria Marking Strip and shared with the pupils.

Activity 3:

Do – A Sample of Power Stations in Scotland

See teacher feedback written on Success Criteria Marking Strip and shared with the pupils.

Next steps will include the pupils designing another leaflet so that skills can be reinforced. Opportunities for note-taking will continue to allow pupils to develop these skills. An outdoor learning trip to Whitelee Wind Farm is planned to allow pupils an opportunity to strengthen and broaden their learning in this area.

Pupil Voice:

What have you learned? How did you learn? What skills have you developed?

Interview with pupil.

What have you learned?

I knew a bit about Solar and Wind but I didn't know about some of the other ones – how they were generated. I learned more about the different power stations in Scotland and where they are.

How did you learn?

I liked working with other people because we could help each other. Me and Jenna talked about what we were writing down for our notes. I didn't really like the note taking bit but I really liked doing the actual leaflet. I liked working with other people on some bits of tasks so that I could check that I was right but I liked doing my own leaflet about energy.

What skills have you developed?

I have learned how to take notes better. I got more of a chance to practise changing notes into my own words. I liked taking the notes from the video clips on Twig. I liked working with other people in a group to talk about our ideas. I really liked planning out and designing my own leaflet with pictures.

Learner Evidence

18-11-15












Appendix 1

Energy Sources

Learning Intentions:

- to identify and name renewable and non-renewable energy sources.
- To categorise energy sources into renewable and non-renewable sources.

Pupil has identified energy sources by naming them.

Renewable	Non-renewable
 biomass  Wind power  Solar power	 Nuclear  Coal
 wave farms  geothermal	
 tidal power  hydropower	 oil  gas

Pupil has identified the renewable energy sources and placed them correctly on the table.

Pupil has identified the non-renewable energy sources and placed them correctly on the table.

Success Criteria:

- name each of the energy sources
- write the name under each energy source.
- decide if each source is renewable (R) or non-renewable (NR)
- write renewable (R) or non-renewable (NR) under each picture.
- cut out each picture
- place each picture in the correct category.
- check and stick.

* Well done, you have successfully met all of the procedural criteria required to complete this task. ★

Pupil has included a definition for each energy source.

Coal - Non-Renewable
Coal was formed 300 million years ago and was made when plants died and fell into mud or water. It turned into coal over millions of years.

Advantages

- cheap
- power stations can be built anywhere with good transport
- the world has lots of coal reserves

Disadvantages

- produces carbon dioxide
- it is non-renewable
- coal-fired power stations need lots of fuel

Nuclear - Non-Renewable
Nuclear is generated when uranium atoms split. This is called nuclear fissions and produces heat energy.

Advantages

- uranium is cheap
- small amount of fuel gives lots of electricity
- no carbon dioxide is produced

Disadvantages

- some people don't think it's safe
- non-renewable
- waste has to be buried and sealed in containers

Hydropower - Renewable
Hydropower is generated by kinetic energy of flowing water spinning a turbine which is connected to a generator which creates electricity.

Advantages

- 20% of world's energy and 99% of Norway's energy

Disadvantages

- adversely affect environment, changes habitats, disrupts local eco-systems

Oil - Non-Renewable
Oil was formed millions of years ago when dead organic built up on ocean floors.

Advantages

- transported easily by pipes
- power stations can be built anywhere as long as there is good transport
- lots of electricity is generated by oil power station

Disadvantages

- burning oil produces carbon dioxide
- produces other emissions
- non-renewable and it's running out quickly
- very expensive compared to coal and gas

Solar Power - Renewable
Solar panels store heat which can be used for: heating water or houses.

Advantages

- fastest source of renewable energy
- solar panels are long lasting, needs no maintenance and can be fitted to individual buildings
- renewable

Disadvantages

- sun photovoltaic power stations are unpredictable, expensive and inefficient
- can't be stored in batteries very well

Tidal Power - Renewable
Tidal power is generated by turbines capturing the tidal flow and turning into electricity.

Advantages

- renewable
- no pollution
- predictable
- cheap electricity
- tidal stream turbine has little environmental impact

Disadvantages

- huge effect on wildlife
- only produced for 10 hours a day
- turbine technology is still under development

Gas - Non-Renewable
Millions of years ago, dead organic built up on the ocean floor, the heat and pressure changes it into kerosene, and then eventually into natural gas.

Advantages

- easy and light to transport by pipes
- lots of electricity generated by one power station
- gas pipes can be built anywhere

Disadvantages

- produces carbon dioxide
- non-renewable
- UK's gas is mostly imported and has to pay loads of money to other countries

Wind Power - Renewable
Wind power is generated when a wind turbine turns wind to electricity.

Advantages

- turbine only, needs simple winds
- longer the blade the more electricity generated
- non-polluting
- quite cheap
- renewable

Disadvantages

- people think they are noisy and ugly and ruin landscapes

Wave Power - Renewable
Wave power is generated capturing the wave movement and turning it into electricity.

Advantages

- renewable
- produces no pollution or chemicals
- do not spoil landscapes

Disadvantages

- unpredictable
- storms at sea can damage machines when they are powerful
- can be noisy

Pupil has included advantages for each energy source.

Pupil has included relevant pictures/diagrams throughout the leaflet.

Pupil has used specialist vocabulary throughout the leaflet suitable for purpose and audience.

Pupil has included disadvantages for each energy source.

A Sample of Power Stations in Scotland

Name of Power Station	Operator	How is power generated?	Location of Power Station (Local Authority)	Capacity (MW)	Commissioned	Closed
Longamer	Scottish Power	Coal-fired	Fife			2016?
Sornway	Scottish and Southern Energy	Coal-fired	Western Isles			-
Yerwell ABB (Shetland)	Scottish and Southern Energy	Oil-fired	Shetland			?
Steven's Croft	E ON UK	Biomass-Wood	Dumfries and Galloway	44	2008	-
Cruachan Dam	Scottish Power	Hydro-electric	Argyll and Bute	440	1965	-
Pitlochry	Scottish and Southern Energy	Hydro-electric	Perth and Kinross	15	1950	-
Earlston	Scottish Power	Hydro-electric	Dumfries and Galloway	14	1936	-
Glendoe	Scottish and Southern Energy	Hydro-electric	Highland	100	2009	-
Hunterston B	EDF Energy	Nuclear	North Ayrshire	1288	1976	-
Torness	EDF Energy	Nuclear	East Lothian	1364	1988	-
Bilka Croo	European Marine Energy Centre(EMEC)	Wave Power	Orkney		2003	-
Whitelee	Scottish Power	Wind Power (Onshore)	East Ayrshire, East Renfrewshire, South Lanarkshire	322	2009	-
Redyard Hill	Scottish and Southern Energy	Wind Power (Onshore)	South Ayrshire	120	2006	-
Robin Rigg	E ON UK	Wind Power (Offshore)	Sea Area, Solway Firth	180	2009	-

Pupil has used a highlighter to identify the name of each power station.

Pupil has used a highlighter to identify in which Local Authority each power station is located.

Pupil has used a highlighter to identify how power is generated in each power station.



Name-
Class-



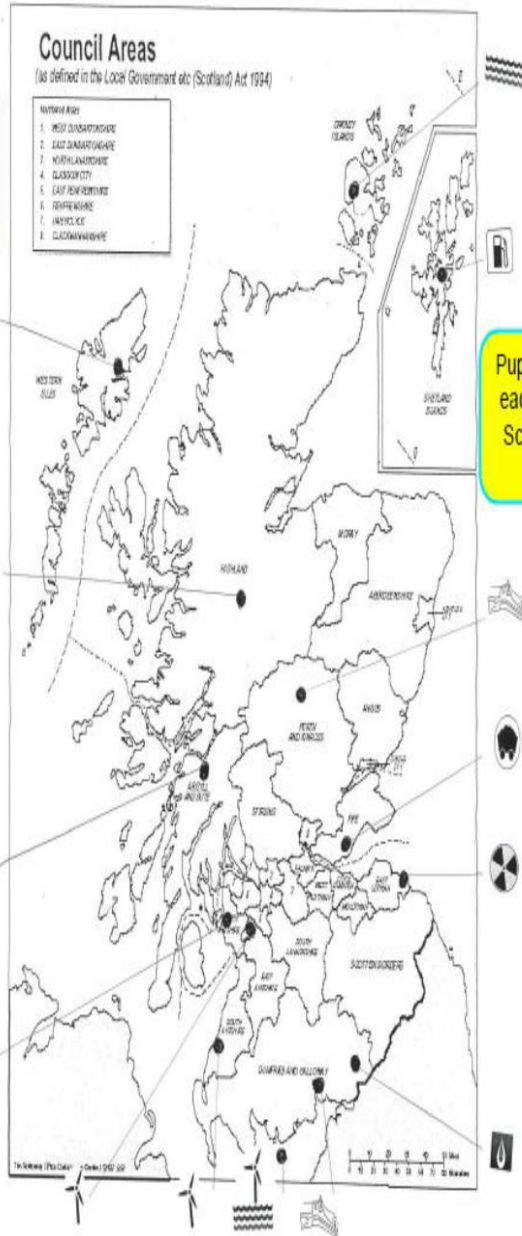
A Sample of Power Stations in Scotland.

Appendix 4

- Learning Intentions:
- to interpret information from a table.
 - to place icons on a map correctly.



Pupil has identified the corresponding icon which shows how power is generated in each power station.



Pupil has identified the location for each power station on the map of Scotland and correctly stuck it in place.