

Key Descriptions of learning within Progression Step 3:

I can understand how my actions and the actions of others impact on the environment and living things.

I can describe the impacts of science and technology, past and present, in my everyday life.

The Four Purposes: Ambitious, capable learners who:

- Use digital technologies creatively to communicate, find and analyse information;
- Undertake research and evaluate critically what they find and are ready to learn throughout their lives.

Integral Skills: Creativity and innovation

Science & Technology Provision Map - Session 1

Science & Technology Statements of What Matters:

Being curious and searching for answers is essential to understanding and predicting phenomena.

The world around us is full of living things

Matter and the way it behaves

Key Links to other Statements of What Matters:

Humanities: Enquiry, exploration and investigation inspire curiosity about the world, its past, present and future.

Our natural world is diverse and dynamic, influenced by processes and human actions.

Cross-Curricular Skills/Learning Experiences:

Literacy: I can write legibly and fluently.

I can use language appropriate to writing, including standard forms, e.g. nouns, pronouns, adjectives, adverbs, prepositions, connectives and verb tenses

I can use and adapt different structures within my writing, e.g. reporting an event, investigation or experiment.

Digital Competence: Producing - I can adjust keywords and search techniques to find relevant information.

WMS1 & Explaining their thinking either verbally or in written form: Climate challenge and celebrating scientists. As ethically informed citizens, learners will need to consider the impact of our actions and of scientific and technological developments, locally and elsewhere in Wales, as well as in the wider world. Pupils will explain their findings in written form, through the production of a biography.

Prior Learning: This is the first lesson in a new topic. Begin by discussing what do you know about this scientist Kiara Nirghin to activate any prior knowledge and use questions as a hook to start the topic.. Who is she? What do you know about her? What do you think she does? Is she somebody who lives now, or is she famous from the past?

Inquiry Type(s): Research

Research using secondary sources.

Common Misconceptions: Children to record what they know about Africa and Kiara Nirghin and what they would like to know about her in the future. This will help to identify any common and previous misconceptions. People from Africa are not all tribal, living in mud huts.

Inquiry Question(s) / Big Idea:

Who is Kiara Kirghin?

How to develop Science Vocabulary:

-**Scientist**, STEM skills, Africa, drought, climate change, orange peel, super absorbent polymer (SAP)

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Resources: Explorify resource - Who is Kiara Nirghin, Youtube clip [Kiara Nirghin – Google Science Fair winner \(youtube.com\)](#), ipads and devices for research, success criteria for creating a successful biography.

Practical Learning Opportunities....Exploration and experience of the world through inquiry, including fieldwork, investigating environments indoors and outdoors in a safe and systematic way:

Begin by discussing what do you know about this scientist Kiara Nirghin? Who is she? What do you know about her? What do you think she does?

What can you deduce from the photographs? Working in a small group or pair, children will look for clues about her in the photographs, using these prompts::

Do you think she does her work now or did she live and work in the past?

Is there anything in the photographs which gives you a clue about the type of science she was involved in?

Kiara Nirghin invented a biodegradable product which helps soils retain water for longer. Why do you think that is useful?

Does global warming mean we will have more droughts worldwide?

Share ideas with the class. Did everyone agree? Watch the Youtube clip: [Kiara Nirghin – Google Science Fair winner \(youtube.com\)](#)

Find out more about her life - discover as many facts as possible about who she is. This introduces pupils to a diverse range of scientists and engineers.

Relate learning to new relevant, real world context / Local Links:

Kiara Nirghin was 16-year-old, from South Africa teenager when she won the **Grand Prize** at Google's Science Fair for her innovation – Fighting Drought with Fruit – which could hold the solution to the country's water woes... using just orange and avocado peels!

Just because we can, does that mean we should? Scientific evidence, ethical implications and impact of science and technology on sustainability and the environment:

N/A

Be Safe!

- N/A

Careers/Work-related Experiences (CWRE) / Developing a range of partnerships and engaging with science and technology professionals and experts (STEM Ambassadors) / comparing past and present (and future):

Northop Horticultural Landscape College

Local garden centres

Alwyn Welsh Water Centre, Llyn Brenig

Natural Resources Wales

Citizen Science: N/A

Progression: Pupils will create a biography about Kiara Nirghin. Pupils will begin by researching who Kiara Nirghin is and making notes about her and her life. Following the success criteria and the WAGOLL, pupils will apply their skills and organise their writing into a biography structure.

Assessment Opportunities (TAPS?):

Were pupils able to use research techniques to gather key information about Kiara Nirghin?

Did pupils consider the reliability of their sources during research?

Were pupils able to apply their skills to present the information in the form of a biography

Next Steps: This session will lead pupils into learning about soils and exploring composting and an observation over time.