

STEM

Learning Intention: We are building an irrigation system

Success Criteria:

- Understanding the term irrigation
- Understanding the need of irrigation systems
- Identifying examples of irrigation systems, including their structure

School: Brookman Primary School

Year Level: 3/4

Term: 3

Year: 2018

Differentiation

- Open ended task
- Early finisher task (see p.3)
- Assistance: Resources will be provided for student to construct a Dhekli irrigation system (including: images of Dhekli system, ice cream bucket, 8mm dowel, pop sticks, tape, cup and sand)

Resources

- To students discretion
- Provided: pop sticks, tape, hot glue/guns, dowel (8mm—16mm), match sticks, straws, irrigation tubing, cups, shot cups, ice cream buckets, sand, hand saws, Stanley knives
- <https://www.youtube.com/watch?v=7DM2c5mei7o>
- <https://www.youtube.com/watch?v=amrCMakolKA>

Assessment

- Anecdotal records (based on Year 3/4 Design Technologies Judging Standards)

Curriculum Links

Science: Forces can be exerted by one object on another through direct contact or from a distance (ACSSU076)

Technology: Ways products, services and environments are designed to meet community needs, including consideration of sustainability (ACTDEK010 opens in new window)

Engineering: Develop and communicate design ideas and decisions using annotated drawings and appropriate technical terms (WATPPS23)

Mathematics: Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)

Teaching Content

1. Watch and discuss irrigation systems

<https://www.youtube.com/watch?v=7DM2c5mei7o>

2. Discuss the 'Rehat Irrigation System'

3. Become familiar with the 'Rehat Irrigation System'

4. Discuss potential ways to build the 'Rehat Irrigation System'

- Cups need to be stable
- Structure needs to be strong
- Water proof



5. Activity sheet:

- Define the problem (moving water from one place to another)
- Explain the sequenced steps that will be taken to address the problem
- Develop a design (using annotations and technical terms)
- Identify needed materials
- Create criteria for the given task based on the problem

Teaching Content

6. Test the 'Irrigation systems'

- Assess against student created criteria

7. Students film themselves answering the following evaluation questions.

What do the successful designs have in common?

What do the less-successful designs have in common?

If you were to do this activity again, what would they try?

8. Early finisher: Watch the link provided below

<https://www.youtube.com/watch?v=amrCMakolKA> - What is irrigation

Based on the link, answer the following questions.

1. What is irrigation?

2. Where is irrigation used?

3. How much of the world is irrigated?

4. How did the ancient Egyptians irrigate their land?

5. How did the Persians irrigate their land?

6. What are the three most common types of irrigation systems?

7. Explain each type of irrigation.