

SUBJECT: SCIENCE

GRADES: 3rd, 4th, 5th.

CONCEPT: Filtration

TOPIC: How can we make dirty water clean?

Suggested Time: 40 minutes

Difficulty Level: Easy - Medium

Objectives:

1. Students will demonstrate the ability to filter water.
2. Students will properly manipulate funnels, beakers and filter paper.
3. Students will state that all potable water goes through filtration.
4. Students will cooperate with others to achieve a common goal.
5. Students will accurately follow directions.
6. Students will exhibit patience in waiting for water to flow through.
7. Students will relate the cleaning of water to Jesus cleansing our sins.

Materials Needed:

<u>Science Equipment</u>	<u>Improvised Materials</u>
Beakers	Beakers-Any kind of clear glass or plastic container.
Funnels	
Filter Paper	Funnels- Cut off upper end of .5L water or soda bottle and put masking tape on the cut edges for safety purposes.
Stirrer	Stirrer – craft sticks; straws
Soil	
Water	Filter Paper- Coffee filters

Multi-grade and Inclusion Accommodations:

- Peer Sharing- strategically group children so that the more able students help those that need assistance.
- Vary questioning levels according to performance or grade level
- Vary post-laboratory activities according to performance or grade level; for example: some students may complete worksheets while others write paragraphs.

Procedures:

1. Obtain all necessary materials. Allow approximately 20g of soil, 40ml of water, one funnel, one stirrer and two beakers per student or group.
2. Mix the soil and water thoroughly in one beaker.
3. Place the funnel into the other beaker.
4. Fold the filter paper into quarters.
5. Place the folded filter paper inside the funnel.
6. Pour the dirty water mixture into the folded filter paper being careful not to let any get between the funnel and the sides of the beaker.
7. Leave equipment undisturbed until all the liquid runs through.
8. Observe the appearance of the water collected in the beaker.

The students will be given the opportunity to develop the following

Process Skills:

Manipulation

- folding filter paper
- inserting filter paper into the funnel
- carefully pouring water

Observation

- appearance of soil/water mixture
- appearance of what remains on filter paper (residue)
- appearance of water in beaker after filtration (filtrate)

Application

- Be aware that all water used at home goes through a filtration process
- Recognize that cleaning water is comparable to Jesus cleansing us from sin

Analysis

- Differentiate between the residue and filtrate

Reporting

- Give oral and /or written report on findings or observations

Co-operation and Patience/Perseverance

- Working together and waiting for results

Cross-Curricular Integration:

Music	Students learn hymn- “What can wash away my sins”
Language Arts	Students make journal entry on what was learnt from the activity.
Art	Students draw and label equipment after set-up.
Bible	Students read and discuss Psalm 51 with emphasis on Psalm 51:10

Career Exploration

Laboratory Technician in water or sewage treatment facility.

Suggested Assessment

Journals
Drawings
Worksheets
Process skills using a rubric

Sample rubric for Co-operation skill:

Score	Skill level
0	Not at all
1	Very little
2	Somewhat
3	Well
4	Very well

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