Lesson Plan for Positive Actions

Please send your Queries/Submit the lesson plan to Dr Pramod Kumar Sharma at pramod@fee.global

1. **Author/s Details**

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g. Submission date of the lesson plan	

2. **Has the lesson plan tried in a classroom (Please write a brief)**

Yes, as a hands on approach using students from 5th grade. Data has been collected and analysed to elaborate an improved lesson plan.

3. **The lesson plan**
   A. Introduction: Background information describing the key concepts in the lesson plan and which SDG they are linked to.

The avalability of water and the existence of arable and non-arable soils are two essential requests for the quality of every living beings. However, the human activities are reducing the availability of these two natural resource, due to its contamination with pollutants (remains of human activities). To aggravate this situation, is the fact that the pollution of one of the resources (water) is influencing the degradation of the other (the soils).

The water, even when evaporates leaves in the soils the pollutants (ODS 15) Are we aware of his fact? What can we do? Give the water destinations to polluted water is essential, being urgent to implement an universal sanitation network which includes the collection and treatment of waste

water in every countries of the world (ODS 6). Through this activity it is sought to understand the importance of the treatment of polluted water and the way this damages the soils. In this activity, the aim is that the students can verify these problems in a metacognitive way. The learning through this experiment as a cognitive value more potentiated for student`conceptual changes. The development of this action represents an excellent way to applicate an exploratory and investigative approach to science.

B. Age Group – Classes that it is suitable for (Age 6 to 9, Age 10 to 11, Age 12 to 14, Age 15 to 16 and Age 17 to 18)
Age 10 to 11, Age 8 to 10

C. Objectives or Learning Outcome/s Select from the learning outcomes listed in the publication.

SDG	Learning Outcome
SDG 6	• Does not pollute water. • Does not waste anything, recognising that water is a resource used to produce everything. • Practices water saving techniques. • Participates in actions for rainwater harvesting. Investigates and reports about different issues of water and likely future scenarios due to climate change. • Protects trees and green spaces that are an important part of the water cycle.
SDG 15	• Protects and promotes the importance of biodiversity. • Spends time in nature, visit nature parks, sanctuaries. • Does not eat the meat of wild animals/games that are endangered or protected by law. • Does not buy products that use animal testing or wild animal parts especially endangered animals. • Greens spaces with local species. • Grows own food. • Reports on positive aspects of protecting life on land. • Supports businesses that respect and care for the local biodiversity.

D. Time required to deliver the lesson plan.
90 minutes

E. Resources Required to deliver the lesson plan (Material, equipment and reading resources)

- **Large transparent bowl**
- **Boiler**
- **Ice cubes**
- **cling film**
- **Food coloring of red color**
- **Water**
- **Sand**
- **Petri dish**
- **work sheet**

F. Activity – Steps or description of how the lesson plan will be conducted/facilitated by the teacher.

Parte I

1. Try to answer with your knowledge to this question:"What happens to the pollutants of polluted water, once this evaporates?"
2. Write in your notebook the possible answers.
3. Perform the experience, to to prove or reject your first answers to the previous question.

Experience

a) Put sand in a tub up to 5 cm
b) Put a goble in the center of the tub as shown in figure 1

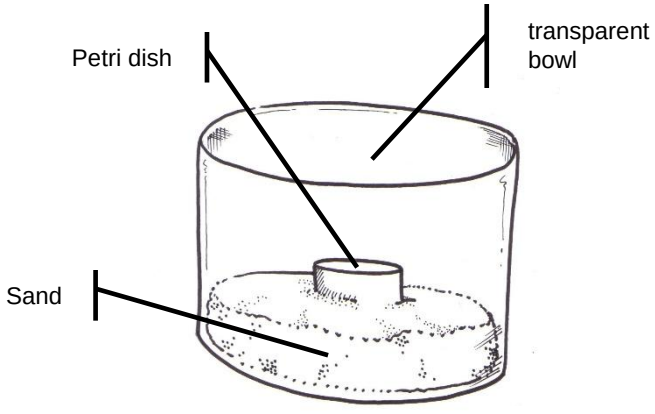

Figure 1

c) Heat the water you have in your kettle (near 1 liter) and add 2 tea spoons of food coloring
d) carefully pour the mixture into the vat without the water entering the goble.

e) Next, cover the tub with cling film, and on top of it, put some ice cubes (as shown in figure 2)

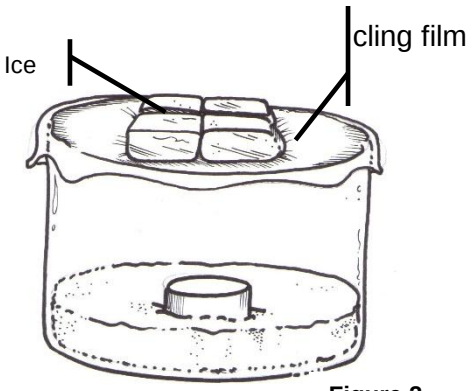

Figure 2

4**)** after performing the previous procedures (a,b,c,d,e) observes what happens. In which places can you find water and what colour it presents? Records the obtained results.

5) Now, answer the following questions

Why did you put sand in the tub?

Why was it important to use hot water in this experience? And the ice?

What conclusions did you take from this experience? The pollutants evaporate or remain in the soil?

Share your answers with your partners and discuss them.

Final worksheet

1- Show in the figure 3 the different zones where there is water and with crayons show the colour presented by the same water.

2- Show in the circles of figure 3 the palces in which we can observe the following physical processes.

A - Water infiltration

B - Water evaporation

C - Water condensation

D - Water precipitation

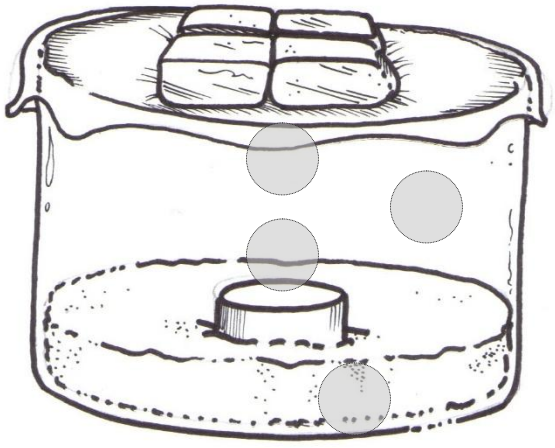

Figure 3

3 Making the parallelism between the presented model and the water cycle in

nature make a connection between the elements of column A (components of the model) and column B (components of nature).

Coluna A			Coluna B
Sand	•	•	High atmosphere zone
dye	•	•	Rain
Ice	•	•	Pollutant
Water in the film surface	•	•	Soil

4- After performing this experience and with your teacher`s support answer this issue: the polluted evaporated is also polluted? Where do the pollutants go?

G. Evaluation and Assessment – How achievements of Outcomes both in short term and long term will be evaluated after the lesson is delivered?

Make a flyer to give neighbours and/or population in general to alert people to warn of hazards of dumping dirty water of from the dishes or another (like washing your car) in the garden, without any previous treatment. Make a newspaper or magazine note about the issue in study, in this activity..

Create a flyer which you can give to people about the importance of preserving the soils.

Make a video spot of +/- 2 minutes about the subject "the importance of solis in our ecosystem". Send it, later, to the city hall and companies.

H. Suggestions of variation or further reading of the lesson plan

I. References – Acknowledging the resources that were used while developing the Lesson Plans.