Computational Thinking in Science Curriculum

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Preparation for Science and Mathematics
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Outline

Example: Conditional Statement - If Then Else

Example: Loop Iteration

How to Identify Computational Thinking Moments in the Science Textbooks?

Computational thinking is a set of problem-solving methods that involve expressing problems and their solutions in ways that a computer could also execute.
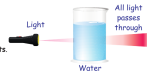
4 S2 III Transparent, Translucent and Opaque objects

Some objects allow light to pass through them. This helps us to see through them as the window of a bus. Let us see how different objects behave with light.

1. Transparent Objects

Transparent objects allow the light to pass through them. So, we can see other objects clearly through **transparent objects**.
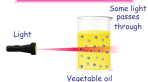**Examples:** Air, glass and pure water.

Light → | All light passes through

Water

2. Translucent Objects

Some light passes through

Light →

Vegetable oil

Translucent objects allow some light to pass through them. So, we cannot see objects clearly, but we see them as blurred images through them.
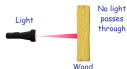**Examples:** Paper soaked in oil, snow and vegetable oil.

3. Opaque objects

Opaque objects do not allow light to pass through them. So, we cannot see through these objects.
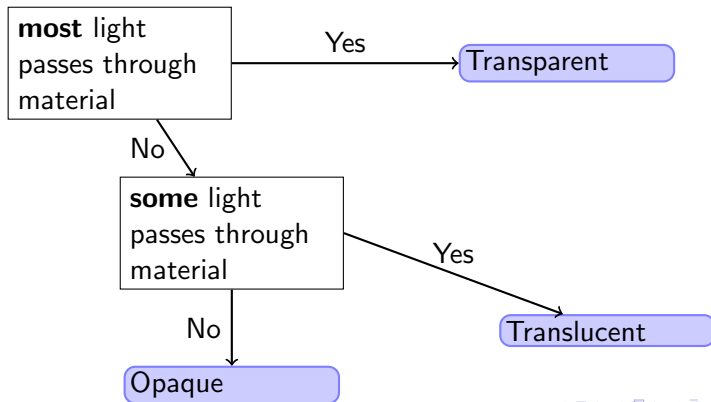**Examples :** Wood, stone and metals.

Light → | No light passes through

Wood

Think and Answer

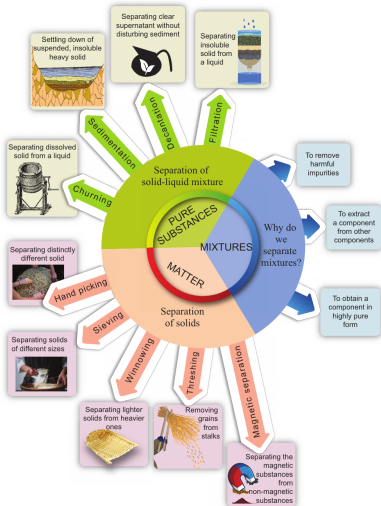# 4 S2 III Transparent, Translucent and Opaque objects

Exercise

Classify the objects given below as transparent, translucent or opaque materials.

Air, Rock, Water, Aluminium foil, Mirror, Snow, Wooden board, Polythene bag, CD, Oil soaked paper, Glass tumbler and Coloured glass
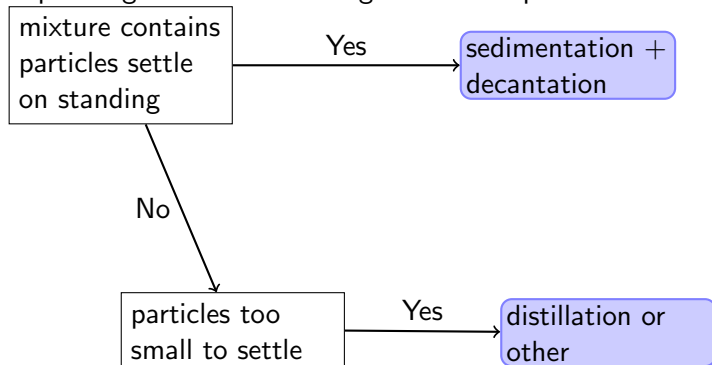
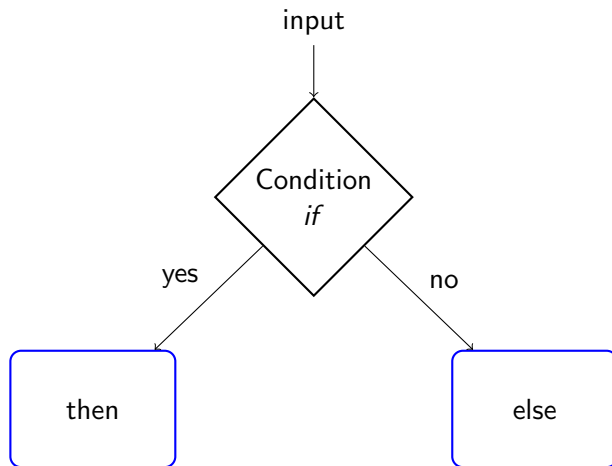## Separation Techniques

6.3.6 Separation of Mixtures

Separating mixture containing solid and liquid

mixture contains particles settle on standing

Yes → sedimentation + decantation

No

particles too small to settle

Yes → distillation or other

If-Then-Else Flow Diagram

input

Condition
if

yes

no

then

else

Kerala SCERT Class 7, 8. Wonders of the Sky

2023 May		
The date of Full Moon in the calendar		May 5
The date of New Moon in the calendar		
Number of days taken to reach New Moon from Full Moon		

Examine the next month's calendar also . Find out how many days are needed for the Moon to reach the next New Moon from the Full Moon?

2023 June		
The date of Full Moon		
Date of New Moon in the calendar		
The number of days between two consecutive New Moons by checking both the calendars.		

Kerala SCERT Class 7, 8. Wonders of the Sky

| | Class - VII |

2023
MAY

The date of Full Moon in the calendar	May 5
The date of New Moon in the calendar	
Number of days taken to reach New Moon from Full Moon	

Examine the next month's calendar also . Find out how many days are needed for the Moon to reach the next New Moon from the Full Moon?

2023
JUNE

The date of Full Moon	
Date of New Moon in the calendar	
The number of days between two consecutive New Moons by checking both the calendars.	

1. Identify full-moon date; 2. Identify next new-moon date; 3. Compute difference; 4. Repeat for next month.

Kerala SCERT Class 7, 8. Wonders of the Sky

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Decompposition/ Defining subrou- tines/ functions

Computational Thinking Moments in the Science Textbooks

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- Abstraction and pattern recognition, focusing on relevant features. Tasks requiring comparison of data, drawing tables/graphs, identifying patterns, generalising from data, ignoring irrelevant detail

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- Testing, debugging, evaluation test the solution, reflect on limitations, verify fairness of test

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- Abstraction and pattern recognition, focusing on relevant features.
- Testing, debugging, evaluation
- Data visualisation Use of charts/tables/graphs to represent results