

### 3. How to arrange the assessment for scientific literacy?

According to PISA, scientific literacy is defined as “The capacity to use scientific knowledge to identify questions and to draw evidence-based conclusions in order to understand and help make decisions about the natural world and the changes made to it through human activity”.

Assessment is an important component in learning and learning. This is also important when achieving scientific literacy is the main goal in learning. The survey program that helps assess scientific literacy is the PISA-OECD which focuses on practical knowledge, answers questions scientifically, identifies relevant evidence, evaluates conclusions critically and connects scientific ideas.

The definition of scientific literacy into the assessment of scientific literacy, PISA identifies three broad dimensions of scientific literacy, namely the process of science, the content of science, and the context of science. Science processes refer to the mental processes involved when answering questions or solving problems, such as identifying and interpreting evidence and explaining conclusions (Firman, 2007).

PISA establishes the following three aspects of the science process / competency component in the assessment of scientific literacy, namely identifying scientific questions, explaining phenomena scientifically and using scientific evidence.

#### 1. Identifying scientific questions

Scientific question asking for answers based on scientific evidence. This includes knowing questions that might be scientifically investigated in a given situation, identifying key words to find scientific information about a given topic.

#### 2. Explain phenomenon scientifically

Students demonstrate the ability of this science process by applying science knowledge in a given situation. This competency includes describing or interpreting phenomena, predicting change. This competency involves the introduction and identification of descriptions, explanations and predictions.

#### 3. Using scientific evidence

This competence requires students to interpret scientific findings as evidence for a conclusion. This competency is assessed in the following ways:

1. Participant's assessment of scientific information
2. get conclusions based on scientific evidence
3. Choose from alternative conclusions related to the evidence provide
4. Giving a reason to agree or reject the conclusion is gotten from the available data
5. Identify assumptions made in reaching conclusions
6. Make reflections based on the social implications of scientific conclusions.

Category	Science process scope
Identifying scientific questions	Know the questions that are scientifically investigated
	Identify key words to find scientific information
	Get to know the key features of scientific inquiry
Explain phenomena scientifically	Apply science knowledge in situations

	Describe or interpret phenomena scientifically and predict changes
	Identifying adequate descriptions, explanations and predictions
Using scientific evidence	Interpret scientific evidence and get conclusions
	Give reasons to support or reject conclusions and identify assumptions made in reaching conclusions
	Communicating conclusions with evidence and reasoning behind conclusions

#### References:

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