

SCIENCE GRADE 8

A. Short Answer (SA) 2 points

Mean: 0.38

Standard: III.A.4

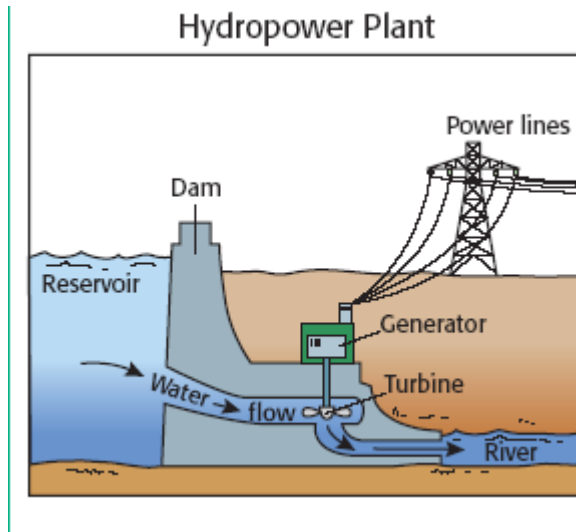
Strand: Science and Society

Content Standard: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by individuals and societies.

Benchmark: Explain how scientific discoveries and inventions have changed individuals and societies.

4. Critically analyze risks and benefits associated with technologies related to energy production.

The diagram shows how water flowing from a reservoir is converted into electrical power for human use.



Identify 1 benefit and 1 disadvantage of using this type of technology to produce electricity.

B. Rubric

Top score response:

Student identifies one disadvantage and one benefit of hydropower technology.

Disadvantage may include:

1. River environment is changed by building a dam.
2. Water needed for other uses (competitive resource).
3. Harmful to some animal species.

Benefits may include:

1. Low pollution.
2. Renewable source of energy.
3. Low maintenance costs.

Score	Description
2	The student demonstrates thorough understanding of the relevant scientific concepts and/or procedures. The student completes the task correctly, using scientifically sound procedures and provides clear and complete explanations and interpretations. The response may contain minor flaws that do not detract from the demonstration of thorough understanding.
1	The student demonstrates partial understanding of the relevant scientific concepts and/or procedures. The response includes some correct information, but indicates a lack of essential understanding of the scientific concepts and/or procedures. Explanations and/or interpretations are incomplete or only partially supported. The response may contain flaws that indicate misunderstanding of the task or of the scientific concepts and/or procedures.
0	The student demonstrates no understanding of the relevant scientific concepts and/or procedures. The response is incorrect or irrelevant to the skill or concept being measured, or no response is provided.

Sample response:

One disadvantage of generating electrical power from a hydropower dam is that there is only so much energy in the water. If you need more energy you can't make it produce more. A benefit is that flowing water is a renewable resource that is not changed when it is used.

C. Student Responses

Score 2

27 Hydro-power dams provide essential energy to towns and cities across the globe without the negative effects of pollution. Water power can also harm the environment by stopping water flow to certain areas and damaging ecosystems.

27 One benefit of using this type of technology is that it is environmentally healthy and does not pollute the air or other resources. One disadvantage to using this type of technology to produce energy is that the water used in this process is freshwater from a reservoir that could instead be used for drinking, bathing, etc.

27 One major advantage of hydroelectric power is that it is basically renewable. We will always have water. A disadvantage is that dams are expensive, and many consider them harmful to the environment.

Score 1

27

The use of natural resources to conduct electricity is an advantage because it is less pollutant than a power plant fogging up the atmosphere.

A disadvantage is that we must be dependent on rain to fuel or supply of water

27

One advantage is that we can use our most abundant resource to make electricity, so we will have an abundant amount of electricity.

A disadvantage is that some rain water could cause electrical shock.

27

A benefit is that we can produce non toxic energy a disadvantage is that we can loose alot of water.

Score 0

27

1 disadvantage would be that something dangerous can happen.

1 benefit would be that it will be better for us.

27

One advantage is using water to make the generator work.

One disadvantage is that if the water evaporates.

27

The water from the Reservoir goes under the dam flow to turbine into a power line then it goes to a River.