YEAR 7 | MYP-INSPIRED DIAGNOSTIC

Science

Name: _____ Date: _____

Suggested time: 55 minutes | Focus: A Knowing and understanding; B Inquiring and designing; C Processing and evaluating; D Reflecting on the impacts of science

Instructions: Answer independently. Explain your thinking, refer to evidence and show working where appropriate. This is an unofficial diagnostic, not an IB examination.

Scientific knowledge

1. Explain the difference between a physical change and a chemical change. Give one example of each and justify.

2. Describe how energy is transferred when a metal spoon is left in a mug of warm water.

Design an investigation

3. A student claims that water temperature affects how quickly sugar dissolves. Write a testable research question, hypothesis, independent variable, dependent variable, two control variables and a repeatable method. Include a safety consideration.

Process evidence

4. A student measures the time for equal sugar samples to dissolve: 20°C: 120 s; 40°C: 70 s; 60°C: 35 s. Describe the trend, calculate the percentage decrease from 20°C to 60°C and explain one limitation of drawing a firm conclusion from these three measurements.

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5. Suggest how to improve reliability and explain how the improved data could be displayed.

Science in society

6. A school is considering replacing disposable bottles with refill stations. Explain one environmental benefit, one possible challenge and what evidence would help decision-makers.

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PARENT / TUTOR GUIDE

Use this guide after the student has completed the assessment. Credit sound reasoning and justified alternative responses. These are formative observations, not official MYP criterion levels.

Assessment lens

A Knowing and understanding; B Inquiring and designing; C Processing and evaluating; D Reflecting on the impacts of science

Answers 1-2

1: Physical change does not create a new substance; chemical change produces new substances. Suitable justified examples accepted. 2: Thermal energy transfers from warmer water to cooler metal, mainly by conduction.

Investigation 3

Hypothesis: higher temperature decreases dissolving time. Independent: water temperature; dependent: time to dissolve. Control sugar mass/type, water volume, stirring. Repeat trials and handle warm water safely.

Data 4-5

4: Dissolving time decreases as temperature rises; (120 - 35)/120 × 100 = 70.8% decrease. Only one result per temperature means variability is unknown. 5: Repeat trials, calculate means, use a graph of temperature vs mean time.

Science in society 6

Possible benefit: less single-use waste; challenge: station maintenance or water use; evidence: waste audits, life-cycle data and costs. Reward balanced evaluation.

Observation checklist

Does the student explain reasoning clearly? Can they select relevant evidence, revise a first idea and communicate a conclusion? Note specific examples rather than assigning an unsupported IB grade.

Next steps

Choose one strength and one priority for the next lesson. Ask the student to explain how they reached their answer before providing corrections.

Curriculum note

The MYP uses subject-specific criteria A-D. This independent diagnostic samples related skills; it does not fully assess all strands or replace school assessment. Year 7 is commonly MYP Year 1, but school year naming varies.

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