

IEA - Data Enhancement Project

Questionnaire printing

Study: SC2

Population: 2

Instrument: STA_2

Student Science Achievement Test (2A)

Population 2

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1 Some seeds germinate (start to grow) best in the dark, others in the light, while others germinate equally well in the dark or the light. A girl wanted to find out by means of an experiment to which group a certain kind of seed belonged. She should put some of the seeds on damp newspaper and

- A keep them in a warm place in the dark.
- B keep one batch in the light and another in the dark.
- C keep them in a warm place in the light.
- D put some on dry newspaper and keep them in the light.
- E put some on dry newspaper and keep them in the dark.

P2A01

2 Flowers cannot usually produce seeds unless

- A they are visited by insects.
- B they appear in the summer.
- C they are on plants growing in good soil.
- D they produce nectar.
- E suitable pollen is placed on their stigmas.

P2A02

3 The serving of reheated meat in restaurants is often discouraged and sometimes prohibited by law. Which of the following is the main reason for this?

- A Most people do not like it.
- B Valuable mineral salts are lost on reheating.
- C It is uneconomic to heat food twice.
- D Bacteria will multiply quickly on the warmed-up meat.
- E Reheating causes a reduction in protein content.

P2A03

4 A boy used a hand pump to put more air into a bicycle tyre. After a while it becomes harder to use the pump. Why?

- A Air in the tyre pushes against the pump.
- B Air starts to leak out of the pump.
- C The pump gets too hot to hold.
- D The pump gets too sticky to push.
- E The tyre is bigger than the pump.

P2A04

- 5 Three candles, which are exactly the same, are placed in different boxes as shown in the diagram. Each candle is lit at the same time.

[3 picture of candles in different boxes]

In what order are the candle flames most likely to go out?

- A 1, 2, 3
- B 2, 1, 3
- C 2, 3, 1
- D 1, 3, 2
- E 3, 2, 1

P2A05

- 6 The freezing point of a liquid is the temperature at which it freezes. The boiling point is the temperature at which it boils.

Which one of the entries in the following table shows how the freezing point and boiling point of salt water compare with those of pure water?

	Freezing point of salt water	Boiling point of salt water
A	lower than pure water	lower than pure water
B	lower than pure water	higher than pure water
C	higher than pure water	lower than pure water
D	higher than pure water	higher than pure water
E	same as pure water	same as pure water

P2A06

- 7 A girl wanted to seesaw with her little brother.

Which picture shows the best way for the girl, who weighed 50 kg (kilograms), to balance her brother, who weighed 25 kg?

[4 pictures of way to seesaw]

- A picture K
- B picture L
- C picture M
- D picture N
- E none of these

P2A07

8 The following results are from experiments which were made to find how long it took for newborn babies of different mammals to double in weight.

Mammal	Time in days to double the weight of the newborn baby	Percentage protein in the milk of the mother
human	180	1.6
horse	60	2.0
cow	47	3.5
pig	18	5.9
sheep	10	6.5
dog	8	7.1
rabbit	6	10.4

What do the results of these experiments suggest?

- A The larger the mammal, the greater the protein concentration in the milk.
- B The smaller the mammal, the greater the protein concentration in the milk.
- C The greater the protein concentration in the mammal's milk the slower the newborn baby will double its weight.
- D The greater the protein concentration in the mammal's milk the faster the newborn baby will double its weight.
- E There appears to be no relationship between protein concentration in mammal's milk and time taken for a newborn baby to double its birth weight.

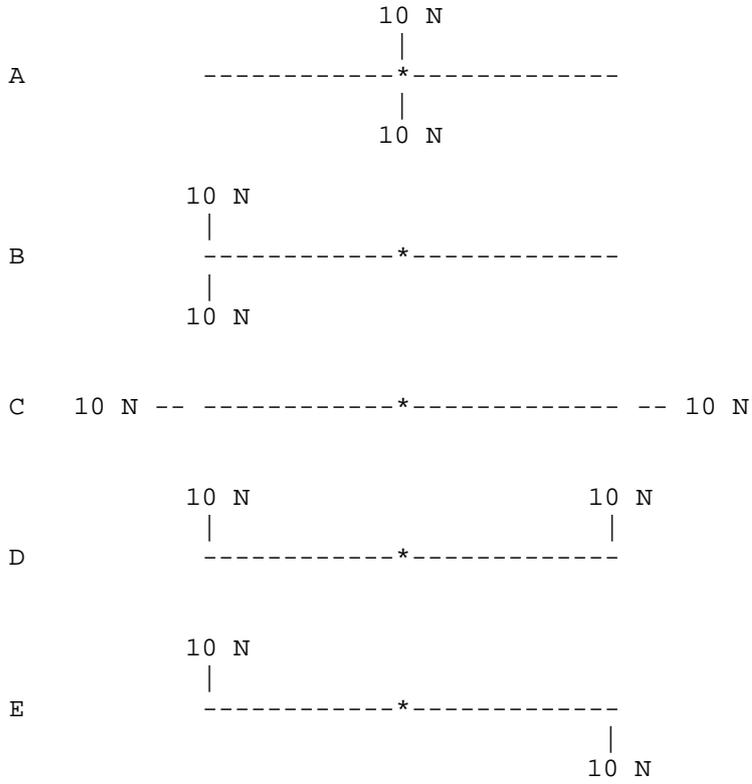
P2A08

9 The crews of two boats at sea can communicate with each other by shouting. Why is it impossible for the crews of spaceships a similar distance apart in space to do this?

- A The temperature is too low.
- B The sound is reflected.
- C The pressure is too high inside the spaceship.
- D The sound barrier has been broken.
- E There is no air.

P2A09

10 A uniform rod is pivoted at its centre. It is acted on by two forces in the same plane. Each force has the same size, equal to 10 N (newtons). In which case is there a turning effect?



P2A10
