Nan Hua Primary School
Primary 4 Science
Term 1 Weighted Assessment 2020

Marks	
Section A:	/10
Section B:	/10
Total:	**/20**

Name: _____( )

Class: Primary 4/_____

Date: _____

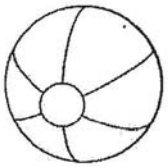
Answer all questions.

Section A: (5 x 2 marks = 10 marks)
For each question from 1 to 5, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write your answer in the brackets provided.

1 The set-up below shows light shining on a rubber ball.



torch

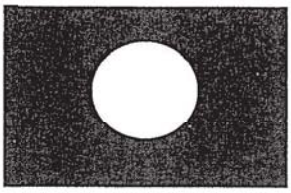


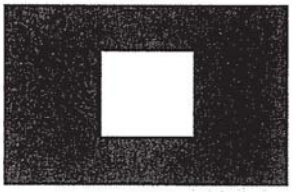
rubber ball

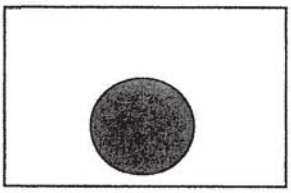


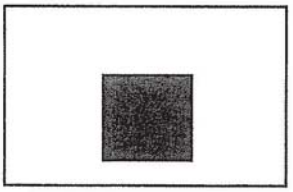
screen

Which one of the following would likely be seen on the screen?

(1) 

(2) 

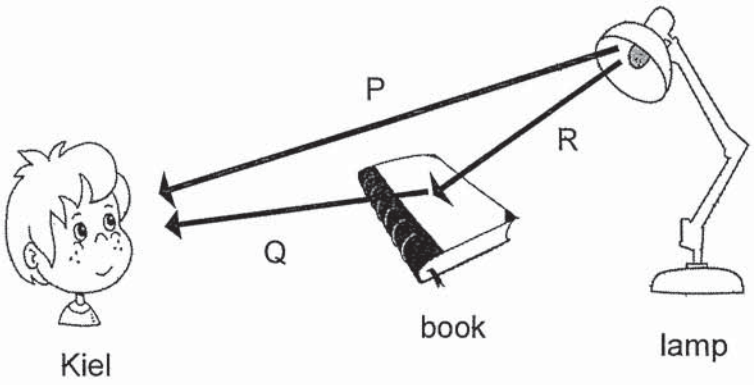
(3) 

(4) 

( )

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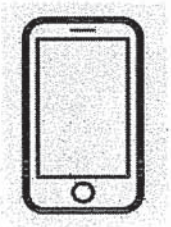
2 In the diagram below, the arrows, P, Q and R show the direction of light.



Which arrow(s) best explain(s) why Kiel can see the book?

(1) Q only
(2) R only
(3) P and Q only
(4) Q and R only ( )

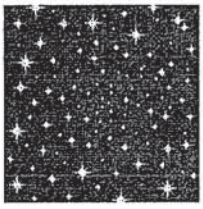
3 Which of the following is not a light source?



phone
(1)



mirror
(2)



stars
(3)



table lamp
(4) ( )

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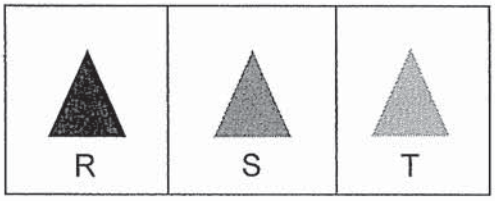
4 Sheryl placed three different materials, R, S and T, between a torch and a light sensor one at a time as in the diagram below.



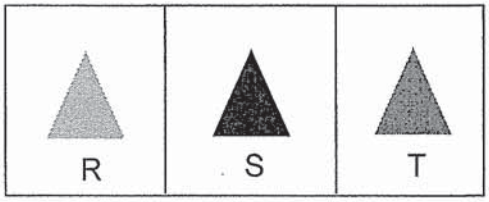
She recorded the amount of light that passed through the three materials in the table below.

Materials	Amount of light detected by the light sensor (units)
R	10
S	150
T	10

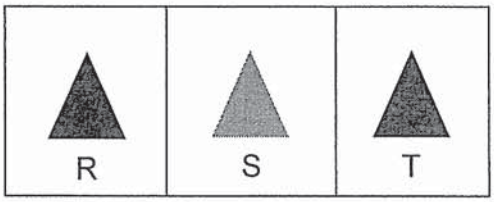
What would Sheryl have observed on the screen?



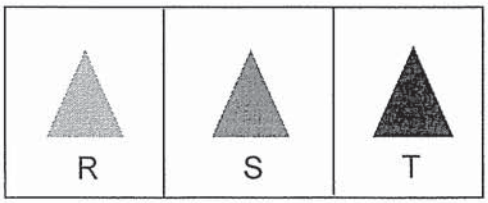
(1)



(2)



(3)

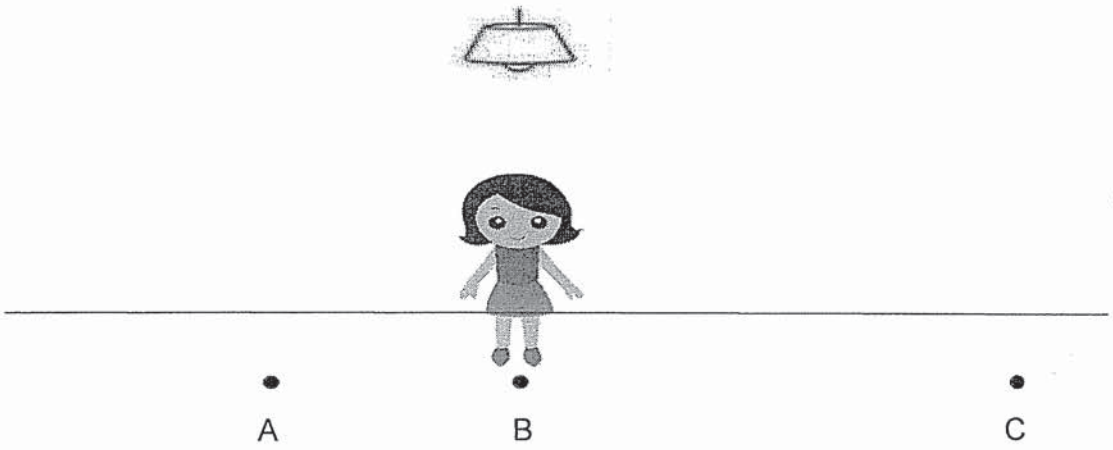


(4)

( )

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5 Mei Ling stood under a lamp as shown below.



She walked to positions A, B and C.

Which table best represents the length of her shadow at the three positions?

(1)

Position	Length of shadow (cm)
A	20
B	30
C	50

(2)

Position	Length of shadow (cm)
A	40
B	30
C	40

(3)

Position	Length of shadow (cm)
A	50
B	30
C	60

(4)

Position	Length of shadow (cm)
A	20
B	30
C	20

( )

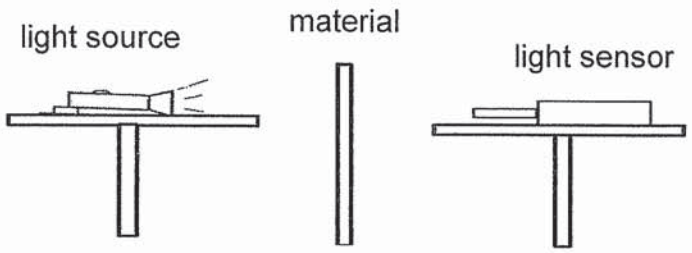
Total marks for section A	/10

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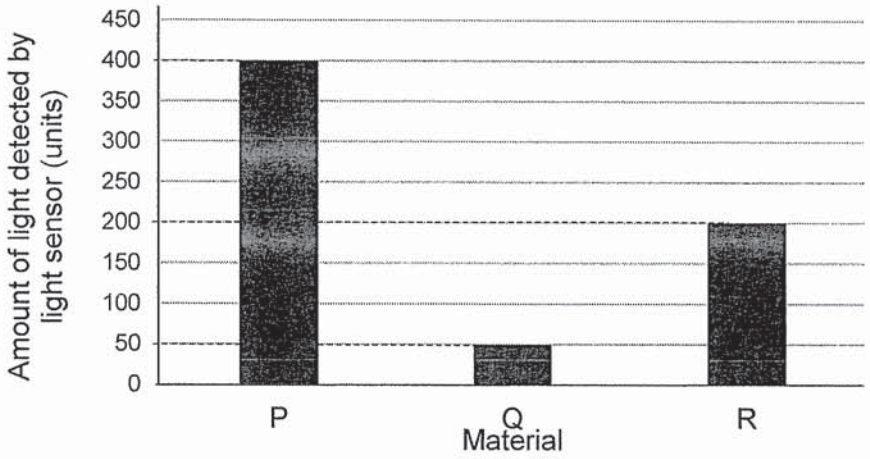
Section B: Structured questions (10m)

For questions 6 to 8, write your answers in the space provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

6 Mel wanted to find out the degree of transparency of three different materials, P, Q and R. She placed each material, one at a time, between the light source and the light sensor in a dark room as shown below.



The results of her experiment are shown in the graph below.



(a) What is the dependent (measured) variable? [1]

(b) Arrange the materials (P, Q and R) in order of their degree of transparency. [1]

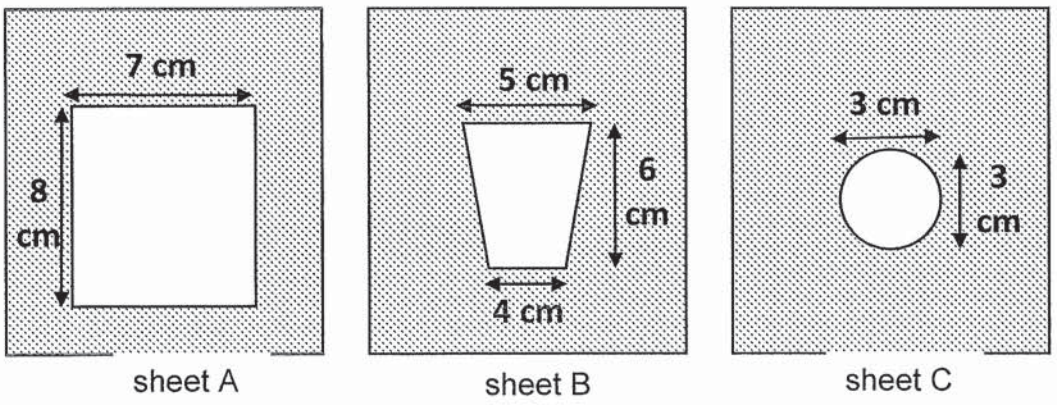
allow least light to pass through → allow most light to pass through

(c) Which material would be the most suitable for making night om dark? Explain your answer. [2]

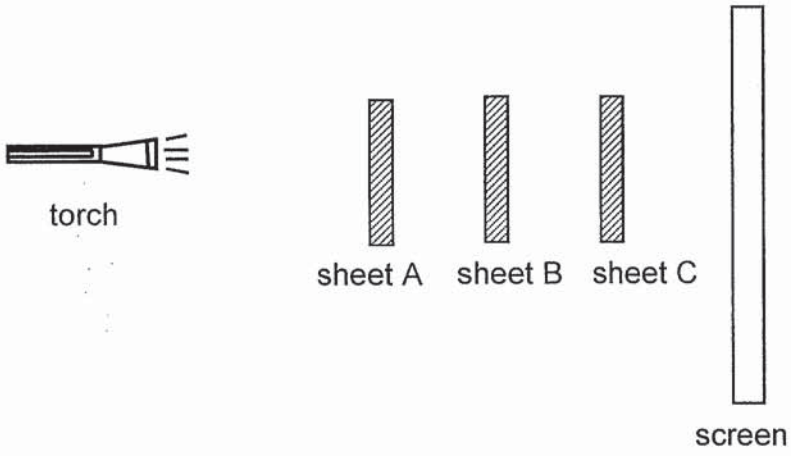
Score	
	4

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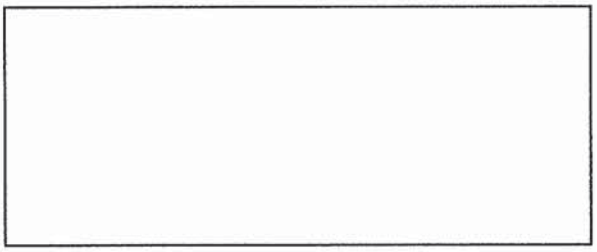
7 Lewis carried out an experiment in a dark room. He cut out three different shapes from three identical metal sheets (A, B and C) as shown in the diagram below.



He arranged the sheets in the order below and shone a torch towards a screen.



(a) Draw the shadow that Lewis would observe on the screen below. [1]



(b) What property of the metal sheets used allows Lewis to observe the shadow in **(a)**? [1]

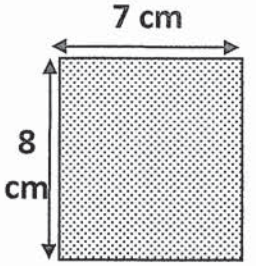
_____

_____

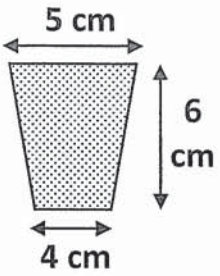
Score	
	2

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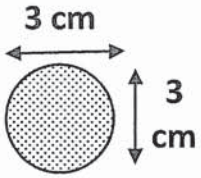
Lewis used the cut-out shapes (D, E, F) from the metal sheets for the second part of his experiment.



shape D

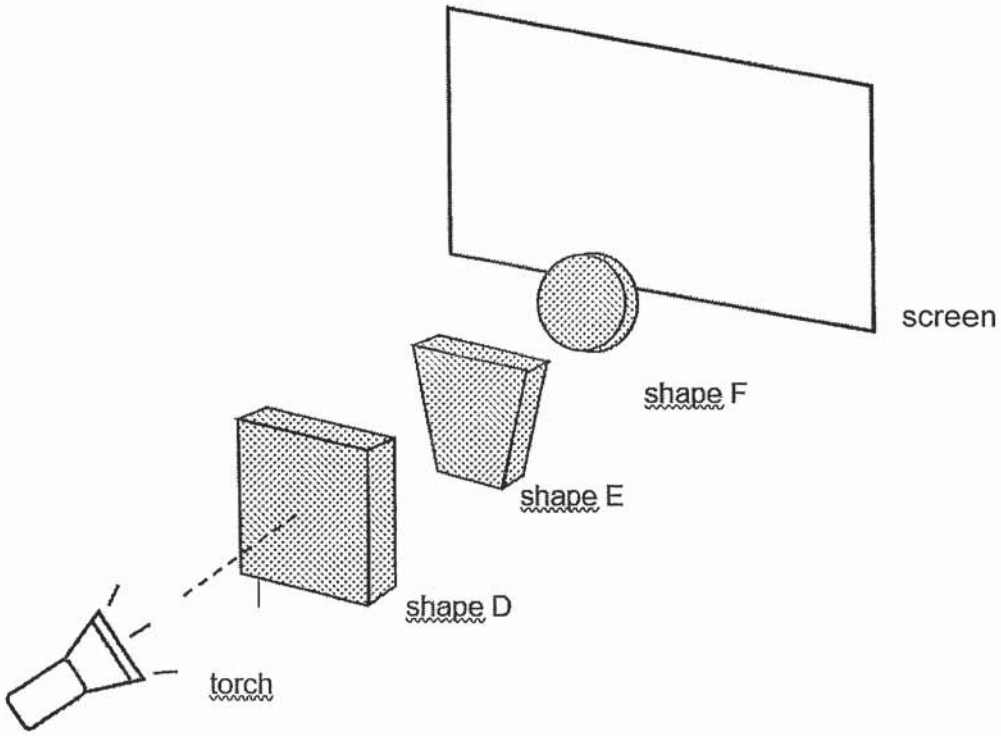


shape E

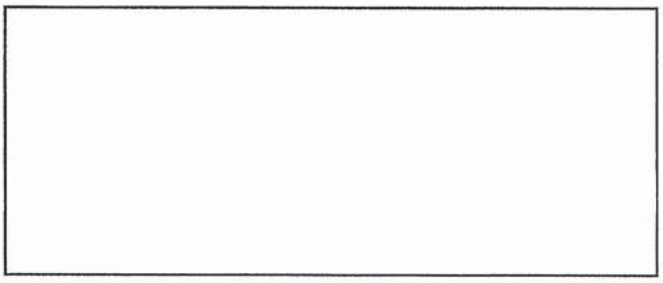


shape F

He arranged the shapes as below and shone the torch towards the screen.



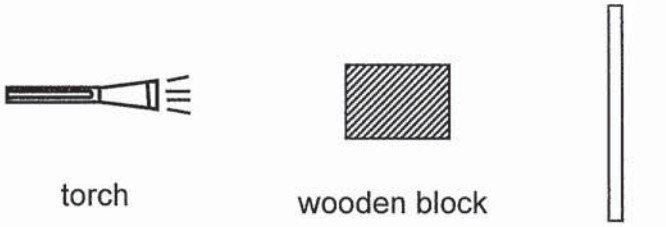
(c) Draw the shadow he would observe on the screen below. [1]



Score	1

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8 Garol used a torch to shine on a wooden block as shown in the diagram below.



He measured the height of the shadow formed on the screen as he moved the torch further from the wooden block. He recorded the height of the shadows formed in the table below.

Distance of torch from the wooden block (cm)	Height of shadow formed (cm)
10	12
20	6
25	

(a) Predict the height of the shadow formed when the torch is 25 cm from the wooden block. Fill in the table above. [1]

(b) Without moving the wooden block, suggest two ways for Garol to increase the height of the shadow on the screen to 13 cm. [2]

(i) _____

_____

(ii) _____

_____

End of paper

Score	3

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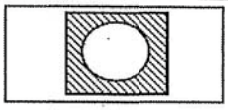
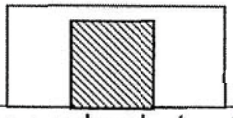
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NHPS Primary 4 Science Term 1 Weighted Assessment 2020
ANSWER KEY

Section A

No.	Answer
1.	3
2.	4
3.	2
4.	3
5.	3

Section B

No.	Answers
6a	The amount of light detected by the light sensor .[1m]
6b	Q | R | P Least Most
6c	Material Q. It allows the least amount of light to pass through it and will block the most amount of light keeping the room dark (Link). OR Material Q. It is the least transparent.
7a	 circle
7b	The metal sheets are opaque/does not allow light to pass through.
7c	 rectangle
8a	Any number between 0 – 6
8b (i)	Move the torch closer to the wooden block (less than 10cm from the wooden block).
(ii)	Move the screen further from the wooden block (keeping the torch 10cm away from the wooden block).

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