



**OUNDLE**

School

**JUNIOR ENTRANCE AND SCHOLARSHIP EXAMINATION 2009**

Science Theory Paper

**NAME:**

- 1 (a) One sunny day some children use a rounders post to make shadows in their playground. When light shines on the rounders post a shadow forms.

Where does the light come from? .....

(1)

- (b) The rounders post makes a dark shadow.

Using the following word list to complete the sentence:

*opaque smooth solid transparent tall heavy*

The rounders post makes a dark shadow because it is .....

(1)

- (c) The children draw round the shadow of the rounders post every half hour from 9:30 until 12 noon. They measure the length of each shadow and record their results in this table:

Time (am)	Length of shadow (cm)
9:30	146
10:00	130
10:30	116
11:00	109
11:30	106
12:00	103

What happens to the length of shadow during the morning?

.....

(1)

- (d) Complete the following table predicting the length of the shadow between 12:30 and 2:30 pm.

Time ( pm)	Length of shadow (cm)
12:30	
1:00	
1:30	
2:00	
2:30	

(2)

- (e) These results were taken in the summer, what difference do you think there would be if the results were collected again during the winter?

.....  
 .....

Explain why there would be this difference.

.....  
 .....

(3)

- 2 (a) Some children record their observations about lettuce seeds germinating at three temperatures. They planted the same number of seeds at each temperature.

Temperature (°C)	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
5	0	0		0	1	1
15	0	0	0	1	5	9
25	0	2	8	13	17	19

Complete the table to show how many seeds germinate at 5 °C on Day 3.

(1)

- (b) What were the children trying to find out about seeds?

.....

(1)

- (c) Look at the results in the table to decide which of the following conclusions is: **true, false** or you **cannot tell**.

The quickest germination was at 25 °C .....

At 25 °C all the seeds germinated by Day 6 .....

5°C is too cold for seeds to germinate .....

The best temperature for germination was 15°C .....

(4)

(d) State two things the children would need to do to make this a fair test.

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.....  
.....  
.....

(2)

3 (a) Charlie placed a saucer of perfume on a table in a classroom. After a few seconds, Sarah claimed that she could smell it. How was Sarah able to smell the perfume when she was a few metres from it?

.....  
.....  
.....  
.....

(3)

(b) Charlie left the perfume on the table for a few days. The liquid seemed to “disappear”. What happens to the liquid?

.....  
.....

(1)

(c) Name two factors that decide how quickly the perfume disappears.

*Factor 1* .....

*Factor 2* .....

(2)

4 Anne, Fred and Joe are learning about forces. They lift and pull several different objects with a forcemeter.

(a) What is the name of the unit used to measure force?

.....

(1)

(b) Fred writes the results in a table.

Action	Force needed to make it start moving
Lifting a brick	25
Lifting a book	8
Lifting a pencil case	4
Pulling a shoe across the desk	12

Which object is the hardest to move?

..... (1)

(c) When Joe lifts the book he is pulling up. What is the name of the force pulling down?

..... (1)

(d) Anne pulls the shoe across different kinds of floor. She finds it harder to pull the shoe on a carpet than on a tiled floor. Explain why this is, naming the force involved.

.....  
.....  
..... (3)

5 (a) Suggest an investigation to test what snails eat.

.....  
.....  
..... (2)

(b) Suggest two things you would keep constant during the experiment.

*First* .....  
*Second* ..... (2)

(c) What would you change during the experiment?

..... (1)

- 6 (a) Some children investigate how food changes when it is heated and cooled. They use a small candle to heat the food and put sand around the candle to make it safe. Give **two** reasons why putting sand around the lighted candle made it safer.

Reason 1 .....

Reason 2 .....

(2)

- (b) They use a thick cloth oven glove to hold the metal forks and spoons containing the food samples while they are heated. Why is **thick cloth** a good material to wrap around the metal spoons when holding them above the candle flame?

.....

.....

(2)

- (c) The children observed the way that each food changed when it was heated. They wrote down their results in a table. Complete the table to say whether the changes were reversible or not.

Food	Change when heated	Is change reversible?
peanut	singes and burns	no
butter	melts	
egg yolk	goes pale and hard	
flour	goes brown	

(3)