

SUMMERLEE MATHS TRAIL P4-7 TEACHERS NOTES



The Maths trail can be completed in small groups or as a class. All you should need is a print off and a pencil. (A clip board might be useful but not necessary.)

There's a measuring scale on the side of the trail that can be used for some of the questions, although if you want to bring a measuring tape it would be helpful for some of the larger measurements. Also, why not use a step watch or pedometer to measure your steps as you go and count it towards the daily mile?

Below are the answers to each question as well as suggestions of additional questions or activities you can pose to the children as you work your way around.

Welcome to Summerlee we hope you enjoy taking part in our maths trail. Start at the main reception and follow the map to find the location of each question.

1. There are lots of different kinds of transport in Summerlee museum. As you go around the trail keep a tally of how many you can spot and write it into the grid below. Add up your total at the end of the trail and see which mode of transport you have spotted the most.
(Data collection, counting & addition)

There is no specific answer to this question as it may depend on which route you take around the museum, you should be able to spot at least one of each. It might be interesting for each group to compare their answers.

Questions 2-5 can be found in the main exhibition hall.

2. Estimate the length of Gibby the steam engine by measuring with your feet. Do you think this an accurate way to measure? *(measuring length, estimation, problem solving)*

Gibby the steam engine is 6m 48 cm in length which was approx. 23 of our feet. Of course, it's not that accurate because everyone's feet are different sizes. Our feet were size 10 shoes, so the pupils will probably come up with a higher number.

Can you think of any other ways to calculate the answer?

You could use the rulers on the side of your trail to measure the engine or different parts of it. Of course, the kids are bound to come up with some other ideas!

3. Look closely at the wall of workers- How many workers can you see in the photos? is it greater than or less than 100?
Many of these workers were children. John is 15 years old and works for 12 hours each day except for Sunday. For every day he earns 50p. How much does he earn in one week?
(greater than/less than /multiplication)

It's definitely more than 100- most industries in the Victorian period were very labour intensive as they didn't have the same level of mechanisation as we do now, and of course no computers.

£3.00 50p x 6 days = £3.00

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4. Visit the Co-operative shop- In the olden days you did not need to pay for your shopping at the time, but you could be invoiced (billed) once a month. If you buy an iron costing £1.25, and you have already spent £10.50 this month, how much will your total invoice be?
(addition/ money)



$$£10.50 + £1.25 = £11.75$$

Some of the objects in the shop window have “old money” prices on them (LSD.) It could be an interesting discussion about decimalisation?

5. The Cardowan winding engine at Summerlee once used steam power to raise and lower miners and coal from the pit. (A bit like a lift) It’s maximum load is 4 tonnes (about the same weight as an average hippopotamus!) The last load raised was 2 tonnes of coal- can you write this as a fraction of its maximum load? (fractions)
2 tonnes is $\frac{1}{2}$ of 4 tonnes

Move outside to answer questions 6-10

6. The Summerlee tram takes 7 minutes to make a journey from the main tram stop to the cottages. It waits for 5 minutes between journeys to allow passengers to get on and off before returning. What is the frequency of the tram? (Time/ addition)
7 minutes in each direction = 15 minutes + 5 minutes stopping times.
14+5= 19 minutes frequency

7. Read the information about this rail steam train near the main entrance- Can you calculate the age of this exhibit? The steam crane was built in 1900 so it is currently 121 years old. (accurate in 2021)



Many of the exhibits have a date on their info panels or on the artefacts themselves- can you find any more dates around the museum?

8. Look across to the café entrance. Choose a window which is symmetrical and draw it in the space below, marking on at least one axis of symmetry. (symmetry)
All the windows are symmetrical, both horizontally and vertically.

9. The concrete base of the engineering pavilion is large to fit in all the machinery. Use the measuring ruler on the side of your trail to calculate the perimeter of the base in m/cm.

The Engineering pavilion is 11m 19cm wide and 16m 20 cm long

(measuring/ addition/ calculating perimeter)

$$1119 + 1119 + 1620 + 1620 = 5478\text{cm, so the total perimeter is } 54 \text{ m } 78 \text{ cm}$$



You could spend a little time here measuring the machinery?
E.g. Look for which are largest/ smallest/ lonest/ tallest.

10. The Vulcan barge carried people and coal along the Monklands canal, pulled along by canal horses. Stop here and measure the height of the canal horse – why not use the traditional methods of measuring with your hands? You can measure your own height too.
(Measuring/ problem solving)

The canal pony is 2m tall, which is approximately life size- working horses were large and powerful! Our hand measurement for the pony (from hoof to shoulder blade) was 12 hands-but of course, the answer may vary depending on the size of your hand.