BRAIN TRAINED!

Maths Investigations

There are three investigations / worksheets with suggested year groups, though of course this will depend on the children's past experience and ability. There are also some hints for helping the children to solve the puzzles.

ACTIVITY 1 : WIMBLEDON SOUVENIRS

Suitable for Year 3 Children

ACTIVITY OBJECTIVES

- **To be able to solve mathematical puzzles or problems.**
- **To practice finding totals of money.**
- **To be able to work out which coins to pay.**

HELPFUL HINTS

After allowing free investigation time, show the children how to set up a systematic list starting with similar coins, e.g. 5 pences and then add in higher amounts.

1. 5, 5, 5, 5, 5, 5, 5, 5, 5
2. 5, 5, 5, 5, 5, 5, 5, 10
3. 5, 5, 5, 5, 5, 10, 10, etc

Answers

Alice can use these coins to pay 45p:

- Nine 5p
- Seven 5p and one 10p
- Five 5p and two 10p
- Three 5p and three 10p
- One 5p and four 10p
- Five 5p and one 20p
- Three 5p, one 10p and one 20p
- One 5p, two 10p and one 20p
- One 5p and two 20p

There are thirteen different ways to pay 50p using only silver coins.
First add 5p to each of the ways for 45p. The other four possibilities are:

- Two 20p and one 10p
- One 20p and two 10p
- Five 10p
- One 50p

ACTIVITY 2: SIMON'S NIGHTMARE WEEK

Suitable for Year 4 Children

ACTIVITY OBJECTIVES

- **To be able to solve mathematical puzzles or problems.**
- **To practice adding 2 digit numbers.**

HELPFUL HINTS

Encourage methodical thinking. Start by dividing to find the average numbers of games won each day:

16, 16, 16, 16, 16

Then focus on moving games to give a difference of 4 each day:

16, 16, 16, 16, 16

8, 12, 16, 20, 24

Answers

Over the five days Simon won 8, 12, 16, 20 and 24 games. He won 84 games altogether.

ACTIVITY 3: ONE GAME ALL

Maths investigation suitable for more able mathematicians

ACTIVITY OBJECTIVES

- **To solve a problem by extracting and interpreting data.**
- **To explain methods and reasoning.**

HELPFUL HINTS

It is very important to encourage logical thinking to solve this problem.

Eliminating the children who can't play, rather than pursuing those who can, leads you to the solution.

Answers

Aryan, Tim, Sophie and Sharhnee play tennis. Two boys can play. James won't play if Tim plays. So the two boys must be Aryan and James or Aryan and Tim.

Aryan will play only if Sophie plays. Sophie won't play with James. So the two boys are Aryan and Tim.

Tim will only play if Sharhnee plays. So the two girls are Sophie and Sharhnee.

WORKSHEET

WIMBLEDON SOUVENIR SHOPPING

1. Alice bought a Wimbledon pencil and rubber set using only silver coins. It cost her 45p. There are 9 different ways to pay 45p exactly using only silver coins. Find as many as you can.

2. What if the set cost 50p? How many different ways are there to pay now?

WORKSHEET

SIMON'S NIGHTMARE TOURNAMENT WEEK

1. Simon was not on good form. He played 80 games in 5 days. Each day he won 4 fewer games than the day before. How many games did he win each day?

2. Simon went on winning 4 fewer games each day. How many games did he win altogether?

WORKSHEET

ONE GAME ALL

1 Two boys and two girls can play tennis.

Aryan said: "I will only play if Sophie plays."

Sophie said: "I won't play if James is playing."

James said: "I won't play if Tim or Abbie plays."

Tim said: "I will only play if Sharhnee plays."

Sharhnee said: "I don't mind who I play with!"

2 Which two boys and which two girls play tennis?