

M1 Maths – Fun and Games

Relay

Aim

To develop motivation and skills for problem solving and group cooperation.

Students seem to be more prepared to persist and struggle with a problem if they are working as part of a group in competition with other groups than when working by themselves. They will probably think as hard about a maths problem here as they will anywhere.

By discussing and arguing, they get ideas from their peers about how to think effectively mathematically.

Procedure

The students form teams of 3 to 5 people. This can be done in varying ways. For instance, students might choose their own. Other times they might be assigned randomly, e.g. by house or by each person picking a team name from a hat.

One person from each team is then removed to act as judge for a different team and sits at a desk some distance from the team they are judging.

During the previous lesson, the students might be told what topics the questions will be on so that those who wish to can revise.

When the teams are organised and seated, the teacher gives each judge a set of questions on strips of paper (without answers) and an answer strip. On the word 'Go', one person from each team goes and collects the first question from their judge. The team works on it, writes the answer on the strip and one student takes it back to the judge.

If it is correct, the judge puts it in a 'correct' pile and hands the student the next question. If wrong, the judge tells the student so. The student has the choice of passing that question in or taking it back for another go. Teams can try a question as many times as they like. If passed in, the question goes on an 'incorrect' pile and cannot be retried.

When time is called, the team with the most questions in their correct pile wins. If any teams answer all questions correctly before time is up, the first team to do so wins, though this is not announced, and the others keep going for second place.

The teams are warned 5 minutes and 2 minutes before time-up.

A sample question set is included below.

Different sets can be made up for different age classes or to focus on particular topics. They can be put into the template below.

Alternatively, questions can be selected from the 'Group Problem Solving' question sets or from the 'Maths Teams Challenge' question sets.

If a single winning team is needed, a tie-breaker question can be used in the manner described in the Group Problem Solving game.

Tip

Small prizes for the winning teams can help with motivation, but are not really necessary.

1 Find the next number in this pattern
68, 56, 46, 38, 32, 28,

2 Bruce bought 20 chocolate frogs, then ate two fifths of them. How many did he have left?

3 How fast would a runner have to go to cover 48 km in 5 hours? Answer as a decimal fraction.

4 How many 30 cm by 30 cm square tiles does it take to cover a 4.8 m by 5.4 m rectangular floor?

5 Alicia had some wooden cubes. Each was 1 cm by 1 cm by 1 cm. How many could she pack into a box which was 20 cm by 12 cm by 5 cm?

6 A circular crater is 920 m across. The distance around it is closest to:

a: 1 km b: 2 km c: 3 km d: 4 km

7 If a team of 3 plumbers can pack 12 cartons of lip gloss in 2 hours, how long will it take a team of 5 plumbers to pack 80 cartons?

Answers: Q1 26, Q2 12, Q3 9.6 kph, Q4 288, Q5 1200, Q6 c, Q7 hours.

Tie breaker: Tommy thought of a number, cubed it, then subtracted 37. This gave him 88. What number did he start with? 5