

M1 Maths – Fun and Games

2 by 5 Challenge

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

Pick 2 students to be judges and sit them at tables at the front of the room.

The rest of the students form teams of 3, 4 or 5. 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.

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 hands out, face down, a question sheet with 2 sets of 5 questions numbered 1-1 to 1-5 and 2-1 to 2-5, but without answers. On the word 'Go', the group turns over their sheet, writes their team name and members' names at the top and begins to answer the questions. Answering in pencil and having an eraser is recommended.

The teacher also hands question sheets with answers to the judges.

When a team has the first set of 5 answered, one member of the team takes their sheet to one of the judges. (The other members can continue working on the other set.) The judge checks the paper and tells the competitor how many of the first set are right (not which ones). The group can go back and try again as many times as they wish. When they are satisfied with their score, they tell the judge that that is their final try and the judge writes their final number correct at the bottom of the set of 5. Once this score is recorded, it can't be changed, but they can have the second set judged. They can work on the second set while working on the first set, but cannot have the second set judged until the first set is finalised.

The teams are warned 5 minutes and 2 minutes before time-up so they can get their un-finalised sets finalised and their final total entered. When their final total is entered, they leave their sheet with the judges.

The judges then determine the winning team(s). If a team gets all 10 correct before time-up, the first team to do so wins, though it is not announced until all have finished.

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, the Maths Teams Challenge Team Event question sets at the appropriate level provide a source for further general question sets.

Variations

As with the Group Problem Solving game, it is possible to hold inter-class contests.

If a single winning team is required, a tie breaker question can be used orally. If the first team to answer gets it right, they win, otherwise, it is between the others until just one remains.

Tips

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

Team Name:

Team Members:

Set1

1-1	What is the 30 th number in this sequence: 44, 57, 70, 83, ... ?	421
1-2	5 people run a race. How many orders can they come in if all finish and there are no ties?	120
1-3	Casey has a rectangular block of land. She can build anywhere on the land except for a triangular easement. One corner of the easement is the front right corner of the block; the second corner is on the right-side boundary, halfway back; the third is halfway along the front boundary. What fraction of the land can she build on?	$\frac{7}{8}$
1-4	The mean of 5 whole numbers is 10; the mode is 8; the lowest number is 2 and one of the numbers is 11. What is the range?	19
1-5	How many litres of milk will a container in the shape of a rectangular prism 2 m by 1.2 m by 25 cm hold?	300

Final number from Set 1 Correct:

You must finalise Set 1 before you can have Set 2 judged.

Set 2

2-1	A cyclist rides the 280 km to Paddington at 35 km/h, then rides back 50% faster. How long does the journey take in hours and minutes?	13 h 20 min
2-2	A picture has height of 16 m and an area of 132 cm ² . It is enlarged until its height is 24 cm. What will the area be then.	297 cm ²
2-3	Joseph's investment grew by 30%, then shrunk by 12%. If it was then \$823.68, what was it at the start?	\$720
2-4	Desmond, Julia and 7 other people are on a boat. Two of the 9 are chosen at random and thrown overboard. What is the probability that the two are Desmond and Julia? Answer as a common fraction in simplest form.	$\frac{1}{36}$
2-5	How many prime numbers are there between 100 and 130?	6

Final number from Set 2 Correct:

Final Total: