2026 Team Up Challenge

Instructions for Teachers

This document provides instructions for running the Team Up Challenge. The instructions should be used as a suggestion only; teachers should feel free to make modifications in order to suit their classes. Ideally there should be four students per team, however this matters more for the relay than the other three parts.

Preparing Materials

In advance of running the Team Up Challenge, we recommend teachers prepare each part as indicated below. Students may want to use scrap paper and calculators as well.

Part	Instructions
Team Paper	Print one copy of the problems per student and one answer sheet per team.
Crossnumber Puzzle	Print one copy of the puzzle sheet and clue sheets per team.
Logic Puzzle	Print one clue sheet and one answer sheet per student.
Relay	Print one copy of the problems and one answer sheet per team. Cut the problem sheets on the dotted lines.

Team Paper: Approximately 30 - 40 minutes

1. The paper contains 15 problems of increasing difficulty. Team members are encouraged to collaborate when solving the problems and should decide on a strategy for sharing the work. It is unlikely that there will be enough time for everyone to do every question.

2. Final answers are to be written on the Team Paper Answer Sheet.

Crossnumber Puzzle: Approximately 20 - 30 minutes

1. The team should divide themselves into two pairs; one pair will take the across clues and the other pair will take the down clues. The team will write their answers on the shared Crossnumber Puzzle sheet as they work through the puzzle.

2. The crossnumber puzzle is designed so that some clues make it possible to find a number directly, some clues rely on an answer from another clue, and other clues require a partially completed puzzle board. Since each pair within a team is working on a different set of clues, the pairs will need to work together to completely solve the puzzle.

3. If teams are struggling to start the puzzle, teachers can direct them to across clues 1, 9, 14, 20, 22, and 23, or down clues 3, 5, 8, 11, 16, and 18.

Logic Puzzle: Approximately 20 - 30 minutes

1. Students use the clues to solve the puzzle. Note that the clues are not given in a specific order, and at times students will need to combine the information given in several different clues.

2. Students can work through the puzzle individually, in pairs, or as a team. Answer sheets are provided for all students so team members have the option to work individually and then compare their work in order to find a solution they all agree with.

3. Students are encouraged to use the answer sheet to write any information they know from the clues in order to help them reach the final answer.

4. If students are struggling to start the puzzle, teachers can direct them to clues 1 and 6.

5. Teams hand in only one Logic Puzzle Answer Sheet.

Relay: Approximately 5 - 10 minutes per relay

1. The "Practice Relay" is intended to be used as a practice round so students can understand the way the relay works. The questions in the Practice Relay are easier than the rest of the relay questions. Also, Player 1's questions are the easiest in all relays.

2. Each team member is assigned a number: 1, 2, 3, or 4. Each number corresponds to a specific problem in each relay. Players 2, 3, and 4 require the answer from Players 1, 2, and 3, respectively, to solve their problem. This is indicated in the problem with the phrase "Replace N below with the number you receive." However, Players 2, 3, and 4 should be able to do some work on their problem while they're waiting for the answer from their teammate.

3. The four team members should not see any of the relay problems in advance and should not talk to each other during the relay.

4. Before the relay starts, each student should have their relay problem face down in front of them. Player 1 should have the answer sheet.

5. Once the relay starts, all players can flip over their paper and start working on their problem. *Even Players 2, 3 and 4 should be able to do some work on their problem right away.*

6. When Player 1, Player 2, or Player 3 thinks they have the correct answer to their problem, they record their answer on the answer sheet and pass the sheet to the next player. Students should write only the numeric part of their answer and **not** include any units. When Player 4 thinks they have the correct answer to their problem, they record their answer on the answer sheet and wait for their teacher to check it.

7. If all four answers are correct, the relay is complete! Otherwise, the teacher will mark the relay as incorrect and pass the answer sheet back to Player 1 so the team can try again. The answer sheet has space for two attempts for each relay.

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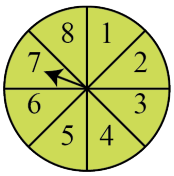
Team Paper

Tips to Get Started

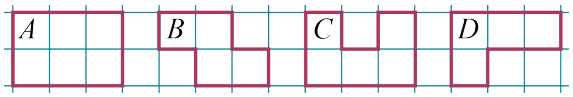
- The questions in this paper increase in difficulty as you move through the paper. The last few questions require some careful thought.
- Each team member doesn't need to do every question. You can split the questions up, work together, or do a combination of both. Come up with a strategy that works for your team.

1. If $3 \times a = 21$, what is the value of a?

2. A circular spinner is divided into eight regions of equal size, each marked with a different number from 1 to 8. An arrow is attached to the centre of the spinner. The arrow is spun once. What is the probability that the arrow stops in a section containing a number that is divisible by 3?

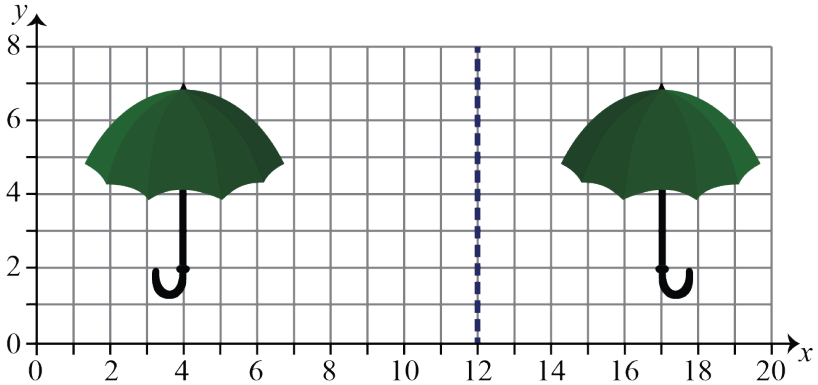


3. Isaak drew the following four figures on 1 cm by 1 cm grid paper. Which of them has the greatest perimeter?



4. Esha and Bahar played 11 games of checkers against each other. Each game had exactly one winner, and each person won at least one game. If Esha won fewer games than Bahar, how many games could Esha have won? Determine all possibilities.

5. An umbrella is drawn on a Cartesian grid so that the tip of the umbrella is at the point $(4, 7)$. The umbrella is translated p units to the right and then reflected over the vertical line through $(12, 0)$. The tip of the translated umbrella is at the point $(17, 7)$. What is the value of p?



6. Two numbers are in the ratio $2 : 3$ and their sum is 15. What is the larger number?

7. Tabitha has four different types of tiles. One type has the same number on both sides and the other three types have a different number on each side, as shown.

Front	0	1	3	5
Back	0	2	4	6

Tabitha places six tiles in a row as shown: 2 6 0 3 1 6. She then puts the six tiles in a box, and shakes the box so some of the tiles flip over. Which of the following could be the box of tiles? Select all that apply.

Box A

3	5	1
0	1	6

Box B

5	4	1
2	5	2

Box C

0	5	6
5	2	1

Box D

5	1	5
4	0	1

Box E

4	0	2
2	6	5

8. Thanh creates a program to classify numbers as small, medium, or large. Users input a number, and the program outputs either `small`, `medium`, or `large`, based on Thanh's instructions. Thanh's instructions are shown.

```
Get number from user.
If number < 5, then print ‘‘small’’.
Otherwise, if number < x, then print ‘‘medium’’.
Otherwise, print ‘‘large’’.
```

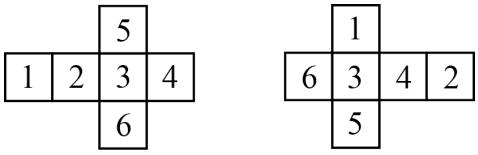
The results when Thanh inputs several numbers are shown in the following table.

Input	8	14	3	5	20	11
Output	medium	large	small	medium	large	medium

If `x` is a positive integer, what are all the possible values of `x`?

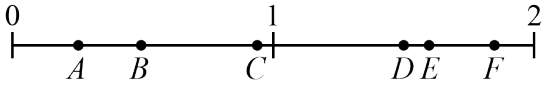
9. A choir has rehearsals on Mondays and Fridays. Last week there were 15 people at Monday's rehearsal and 12 people at Friday's rehearsal. Ten people were at both Monday's and Friday's rehearsals, but 3 people missed both rehearsals. How many people are in the choir?

10. Silvia has two different six-sided dice, each with the numbers 1 through 6 on their faces. A net of each die is shown.



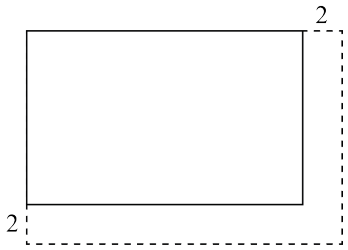
Silvia rolls these two dice and the numbers on the top faces are 1 and 3, in some order. What is the maximum possible sum of the numbers on the bottom faces?

11. Which of the points positioned on the number line best represents the value of $D \div E$?



12. Sebastian added three numbers together and then multiplied their sum by 6. He then realized he had made a mistake. One of the original numbers was 42, but Sebastian had used 32 instead. What is the positive difference between the correct answer and Sebastian's original answer?

13. A rectangle has positive integer side lengths. When the length and the width of the rectangle are each increased by 2, as shown, the area of the rectangle increases by 82. What is the perimeter of the original rectangle?



14. The product of four *different* positive integers is 360. What is the maximum possible sum of these integers?

15. Roderick has small and large beads. Following two rules, he threads 226 beads onto a string. First, no more than 5 small beads can be threaded side by side, and secondly, no more than 3 large beads can be side by side. If S is the number of small beads on the string, how many different values can S have?

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Team Paper Answer Sheet

Team: _____

Question	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

2026 Team Up Challenge

Crossnumber Puzzle

Across Clues

1. The total number of dots on a standard die.
3. A number that is the product of two equal integers.
6. A number whose digits have the same sum as [23 ACROSS].
7. The number that should replace ■ when $\frac{2}{9} = \frac{\blacksquare}{\boxed{15 \text{ DOWN}}}$.
8. The number of centimetres in [5 DOWN] millimetres.
9. The smallest 2-digit integer whose digits multiply to 63.
10. The mean of the four digits in this number is 5.
12. A number whose digits are three consecutive integers, in some order.
14. The perimeter of a square with side length 57.
16. A number that lies between 4860 and 4960 on the number line.
19. This number appears in the sequence where the first term is [14 ACROSS] and each term after the first is 13 less than the previous term.
20. The smallest prime number that is a factor of 209.
21. The area of a triangle with base [8 ACROSS] and height [9 ACROSS].
22. The number of hours in two weeks.
23. The largest number that both 105 and 175 are divisible by.
24. A factor of [15 DOWN].

2026 Team Up Challenge

Crossnumber Puzzle

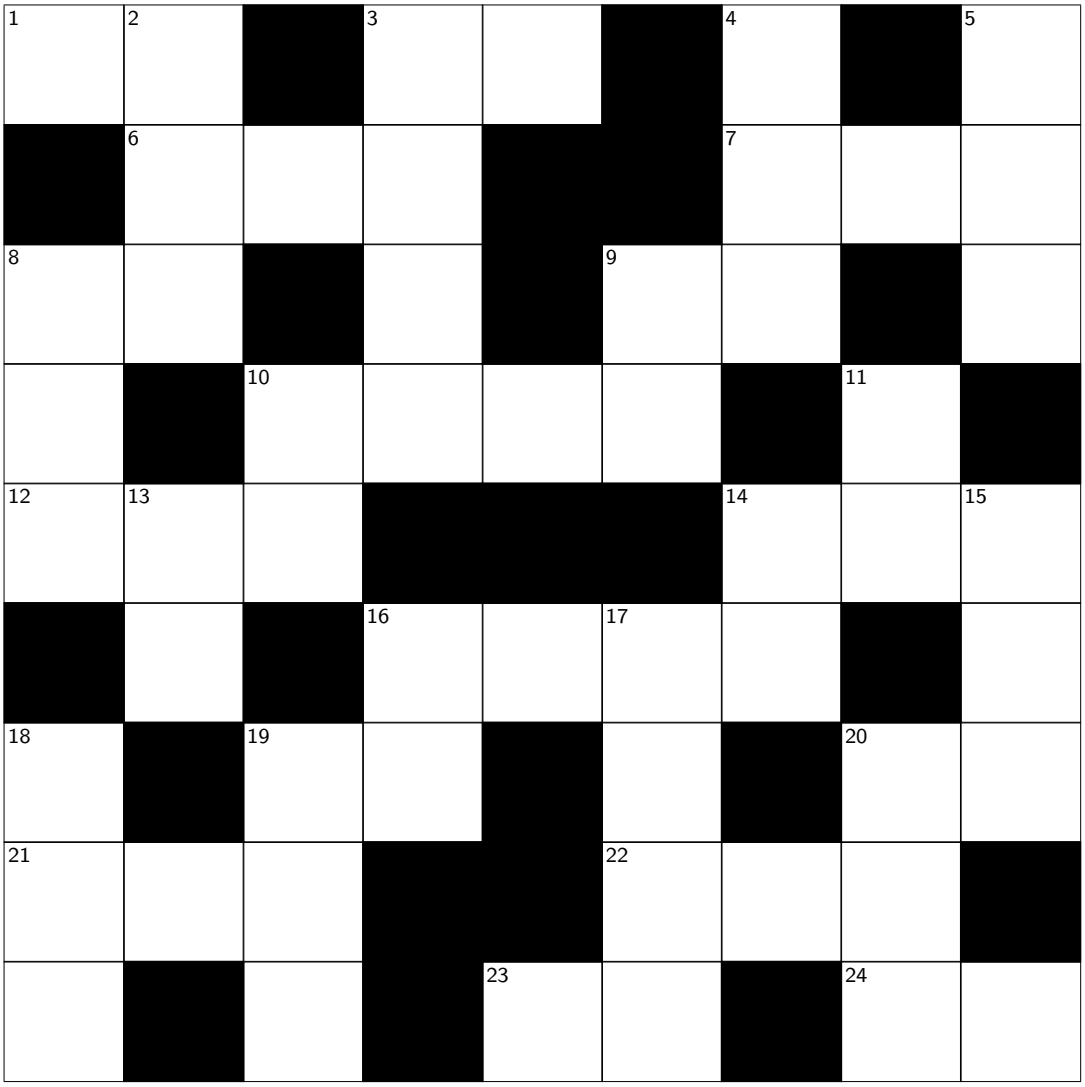
Down Clues

2. A number that is a multiple of 3 ACROSS.
3. The smallest 4-digit number that appears in the sequence where the first term is 1700 and each term after the first is 99 less than the previous term.
4. A number whose hundreds digit is the median of its other two digits.
5. The sum of the interior angles of a triangle, in degrees.
8. The smallest 3-digit multiple of 7.
9. The positive difference between the two digits in this number is 4.
10. The number of positive integers less than 18 DOWN that are multiples of 10.
11. The number of edges of a rectangular prism.
13. A number that is 100 less than the product of two equal integers.
14. The length of a rectangle with area 22 ACROSS and width 11 DOWN.
15. A number whose digits are the same as the digits in 5 DOWN, but not necessarily in the same order.
16. The sum of the integers from 1 to 9, inclusive.
17. A number that is the same when the digits are written in reverse order.
18. The number that is 95% of 500.
19. An integer whose digits sum to 13.
20. The result of 5 DOWN minus 11 DOWN.

2026 Team Up Challenge

Crossnumber Puzzle

Team: _____



Tips to Get Started

- This puzzle is like a crossword puzzle, except that the answers are numbers instead of words. Each empty square in the puzzle is to be filled with one digit.
- Your team will work together, with some of you solving the across clues and some solving the down clues. Start by looking for clues that can be solved right away. Then move on to the clues that rely on an answer from another clue.

2026 Team Up Challenge

Logic Puzzle

Mochi the dog is turning 4 years old. To celebrate, his owner threw a party in the park and invited five of Mochi's dog friends: Biscuit, Comet, Gizmo, Rocky, and Shadow.

The party did not go well. While Mochi behaved well, each of his dog friends caused a problem. One of the dogs barked the entire time. The second stole Mochi's toy. The third dog ate the entire cake. The fourth dog kept chasing squirrels. The final dog ran away and the party had to be paused until the dog was found.

Use the clues below to determine the breed of each of Mochi's dog friends, and the problem they caused at the party.

(1) Rocky, the golden retriever, did not bark at all during the party.

(2) Comet and the beagle like to run. One of them chased the squirrels and the other ran away.

(3) Biscuit isn't the dalmatian and Gizmo isn't the husky.

(4) Shadow did not bark and was not the dog who ran away.

(5) The poodle did not eat cake and did not bark at the party.

(6) Biscuit ate the entire cake.



Tips to Get Started

- You are encouraged to use the answer sheet to write any information you know from the clues in order to help you solve the puzzle. You may find it helpful to write information on sticky notes so you can move them around in the grid.
- Note that the clues are not given in a specific order, and at times you will need to combine the information given in several different clues.

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Logic Puzzle Answer Sheet

Team: _____

Fill in the following table with each dog's name, their breed, and the problem they caused.

Name	Breed	Problem

Practice Relay - Player 1

The number 394 is doubled. What is the ones digit in the resulting number?

Practice Relay - Player 2

Replace N below with the number you receive.
A triangle has side lengths of 6, 8, and N. What is its perimeter?



You can start working on this question while you're waiting for Player 1's answer.

Practice Relay - Player 3

Replace N below with the number you receive.
If $x = 4$, what is the value of $N - 3x$?



You can start working on this question while you're waiting for Player 2's answer.

Practice Relay - Player 4

Replace N below with the number you receive.
Fees for the swimming pool are shown in the table. If a family with 1 adult and 2 children go swimming N times, how much will it cost in total?

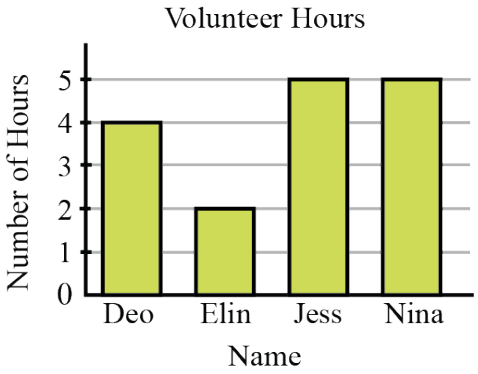
Ticket Type	**Fee**
Adult	\$5
Child	\$3



You can start working on this question while you're waiting for Player 3's answer.

Relay A - Player 1

Deo, Elin, Jess, and Nina volunteer at the food bank. The graph shows the number of hours they each volunteered last week. What is the average (mean) number of hours per person?



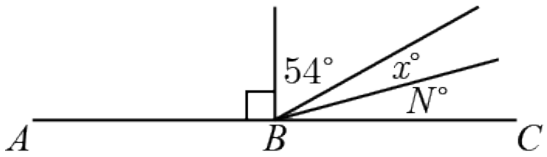
Relay A - Player 2

Replace N below with the number you receive.
A machine produces 180 items in 60 seconds. At this rate, how many items would it produce in N seconds?

You can start working on this question while you're waiting for Player 1's answer.

Relay A - Player 3

Replace N below with the number you receive.
If AC is a straight line, what is the value of x?



You can start working on this question while you're waiting for Player 2's answer.

Relay A - Player 4

Replace N below with the number you receive.
Manish is 5 years older than Delma. Ravi is 6 years younger than Delma. If Ravi is N years old, how old is Manish?

You can start working on this question while you're waiting for Player 3's answer.

Relay B - Player 1

If $\frac{c}{30}$ is greater than $\frac{1}{2}$, what is the smallest possible integer value of c?

Relay B - Player 2

Replace N below with the number you receive.
The product of three integers is 576. Two of these integers are 3 and N. What is the third integer?



You can start working on this question while you're waiting for Player 1's answer.

Relay B - Player 3

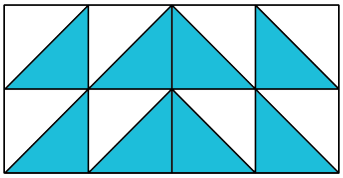
Replace N below with the number you receive.
Raili's video game character started with N coins. Then she fell and lost 8 coins. She then completed a level and earned 15 coins. After that she went the wrong way and lost 10 coins and then encountered an enemy and lost another 6 coins. Finally she found a key and earned 5 coins. How many coins did Raili's character have after that?



You can start working on this question while you're waiting for Player 2's answer.

Relay B - Player 4

Replace N below with the number you receive.
A geometric print contains several right-angled triangles, as shown. Each triangle has a base and height of N. What is the total area of the shaded triangles?





You can start working on this question while you're waiting for Player 3's answer.

Relay C - Player 1

The point $(-4, 6)$ is translated t units to the right. The resulting point is $(8, 6)$. What is the value of t?

Relay C - Player 2

Replace N below with the number you receive.
Rose has finished $\frac{3}{4}$ of the tasks on her to-do list. If there are still N tasks remaining on her list, how many tasks were on her list to start with?



You can start working on this question while you're waiting for Player 1's answer.

Relay C - Player 3

Replace N below with the number you receive.
Asher is making a beaded bracelet. He wants to use 30 beads, each 3 mm wide. If he wants to have N mm of string on each end for tying the knot, how many millimetres of string will he need for the necklace?





You can start working on this question while you're waiting for Player 2's answer.

Relay C - Player 4

Replace N below with the number you receive.
Henrik's empty backpack has a mass of 1.1 kg. In it, he puts his lunch bag, water bottle, and library book. His lunch bag has a mass of 750 g, his water bottle has a mass of 1.8 kg, and his library book has a mass of N g. What is the total mass of his filled backpack, in grams?



You can start working on this question while you're waiting for Player 3's answer.

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Relay Answer Sheet

Team: _____

Practice Relay					
	Player 1	Player 2	Player 3	Player 4	Teacher
1st Attempt					
2nd Attempt					

Relay A					
	Player 1	Player 2	Player 3	Player 4	Teacher
1st Attempt					
2nd Attempt					

Relay B					
	Player 1	Player 2	Player 3	Player 4	Teacher
1st Attempt					
2nd Attempt					

Relay C					
	Player 1	Player 2	Player 3	Player 4	Teacher
1st Attempt					
2nd Attempt					