

Challenge 1

2nd Level



Kaboom!

Materials

- Cups
- Kaboom game

Challenge

- Pupils **work in groups**, taking turns to select a lolly stick.
- If they answer the numeracy question correctly they keep the stick.
- If they get a stick which says KABOOM! then they lose all their sticks.
- At the end, the winner is the pupil with the most sticks.
- Each set has a different operation so can be rotated.

Benchmarks

NUM 2-05a

Identifies multiples and factors of whole numbers.

LIT 2-02a

Contributes a number of ideas, shows respect for other views and builds and contributes of others.

Challenge 2

2nd Level



Shape Towers

Materials

- Paper
- Sticky Tape
- Objects to test strength

Challenge

- Pupils **work in groups** to build a cylinder, cuboid and triangular prism shape from only one piece of paper.
- Then the pupils can test the strength of each shape to find the strongest, using a variety of items.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

SCN

Scientific analytical thinking skills

- Demonstrates further development of creative thinking including through engineering processes of design, construction, testing and modification.

Challenge 3

2nd Level



Paper Cups

Materials

- Paper cups (6 per group)
- Elastic bands
- Wool

Challenge

- Pupils **work in groups** to build a paper cup pyramid using 6 cups.
- Pupils are not allowed to touch the cups but can touch the elastic bands and wool.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

SCN

Scientific analytical thinking skills

- Demonstrates further development of creative thinking including through engineering processes of design, construction, testing and modification.

Challenge 4

2nd Level



Paper Clip Challenge

Materials

- Paper clips
- Elastic bands
- Whiteboards and pens

Challenge

- Pupils **work in pairs** to think of as many uses for a paperclip as possible.
- Pupils share ideas with the class and then try again but with an elastic band.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

LIT 1-02a

Contributes regularly in group discussion or when working collaboratively, offering relevant ideas, knowledge or opinions with supporting evidence. Responds appropriately to the views of other developing or adapting own thinking.

Challenge 5

2nd Level



Spaghetti Tower

Materials

- Spaghetti (10 per pair)
- Gummy sweets (10 per pair)
- Whiteboards and pens

Challenge

- Pupils **work in pairs** to plan how to build a tall tower using spaghetti and gummy sweets.
- Pupils get 10 pieces of spaghetti and 10 gummy sweets.
- The tallest, free standing tower wins.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge/problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

SCN

Scientific analytical thinking skills

- Demonstrates further development of creative thinking including through engineering processes of design, construction, testing and modification.

LIT 2-09a

Communicate clearly and audibly and with expression in different contexts.

Challenge 6

2nd Level



Newspaper Shoes

Materials

- Newspaper
- Sticky tape
- Coloured pens and pencils

Challenge

- Pupils **work in pairs** to create a pair of shoes using newspaper and sticky tape.
- Pupils then present their shoes to the class in a newspaper shoe catwalk.
- Then explain to the class their design decisions.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

SCN

Scientific analytical thinking skills

- Demonstrates further development of creative thinking including through engineering processes of design, construction, testing and modification.

LIT 2-09a

Communicate clearly and audibly and with expression in different contexts.

Challenge 7

2nd Level



Newspaper Towers

Materials

- Newspaper
- Sticky tape

Challenge

- Pupils **work in groups** to design and build the tallest newspaper tower.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

LIT 2-02a

Contributes a number of ideas, shows respect for other views and builds on the contribution of others.

Challenge 8

2nd Level



Army Person Launcher

Materials

- 1 cup
- 1 spoon
- 6 lollipop sticks
- 2 elastic bands
- 2 ft string
- 2 ft sticky tape
- 1 army person toy

Challenge

- Pupils **work in groups** to create a launcher that will transport their person the furthest distance.
- At the end of the session there can be a whole class testing session.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

SCN

Scientific analytical thinking skills

- Demonstrates further development of creative thinking including through engineering processes of design, construction, testing and modification.

Challenge 9

2nd Level



Water Babies

Materials

- Small plastic baby
- Piece of foam
- 2 elastic bands per team

Challenge

- Pupils **work in pairs** to design and build a floating swim support for their baby.
- Pupils to present their ideas to the class and test them in the sink.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

LIT 2-02a

Contributes a number of ideas, shows respect for other views and builds on the contribution of others.

Challenge 10

2nd Level



Sudoku

Materials

- Sudoku sheets of varying difficulty

Challenge

- Pupils **work individually or in pairs.**
- Teacher models on the board.
- Pupils to complete and once accurate can choose a more difficult task.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

MTH 2-15a

I can apply my knowledge of number facts to solve problems where an unknown value is represented by a symbol or letter.

Challenge 11

2nd Level



4 in a Row

Materials

- 16 double sided board games
- Whiteboard pens

Challenge

- Pupils **work in pairs** and take turns to answer the calculations in the box.
- When they get it correct, pupils should use a symbol and mark the box with their whiteboard pen.
- The first to connect 4 in a row is the winner.
- Boards can be wiped and then played again.

Benchmarks

NUM 2-05a

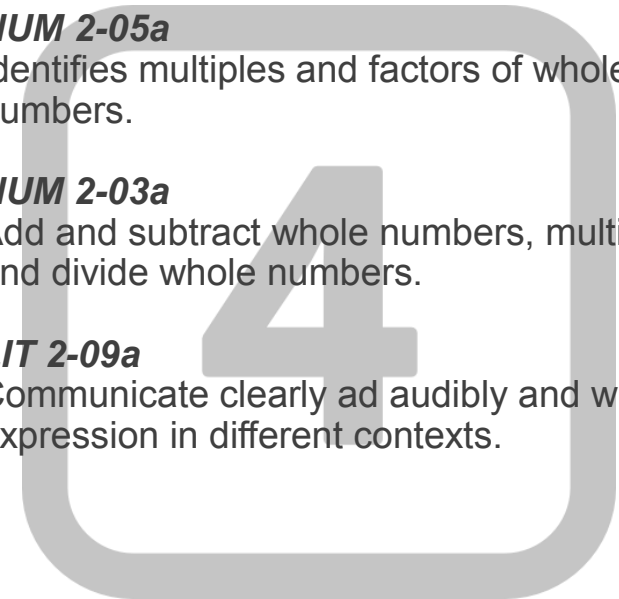
Identifies multiples and factors of whole numbers.

NUM 2-03a

Add and subtract whole numbers, multiply and divide whole numbers.

LIT 2-09a

Communicate clearly and audibly and with expression in different contexts.



Challenge 12

2nd Level



Design a Robot

Materials

- Paper
- Pens, pencils
- Whiteboards

Challenge

- Pupils **work in groups** to design a robot.
- What will it be able to do? How will it help humans?
- Pupils need to agree on its function and design and report back to the rest of the class.

Benchmarks

TCH 2-04d

Investigates a challenge/problem.
Identifies and demonstrates ways to solve the challenge//problem.
Identifies and selects appropriate resources to solve the challenge/problem.
Plans and makes the solution.
Assesses solution against own criteria.
Identifies at least one possible improvement.

LIT 2-09a

Communicate clearly and audibly and with expression in different contexts.