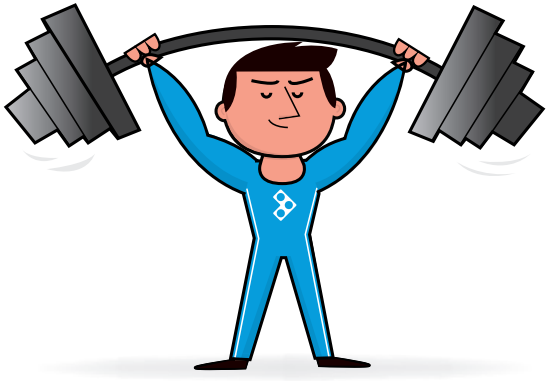
Numicon Summer Challenge Activity 1

Weightlifting | An adding and equivalence activity



What you will need

- 1 copy of the playing board enlarged to A3
- Plenty of Numicon Shapes
- Numicon Pan Balances for children to check their working with if needed
- Numicon Spinner with the appropriate spinner overlay depending on age/stage of understanding or, Numicon Dice.

What to do

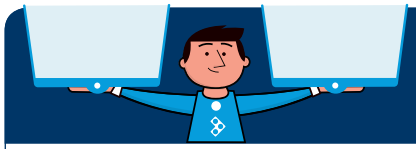
1. Work in pairs.
2. Explain that weightlifting should only be done with the same weight being lifted by each hand.
3. Each player spins the Spinner or rolls the dice to get the total that needs to be in each pan and then has to decide which different pairs of Shapes to put on each side of the pan balance on their playing board to make sure it is equal. For example, if 8 is spun, or rolled, a 6-shape and a 2-shape can be placed in one side of the pan balance, and two 4-shapes placed on the other side.
4. Find all the pairs of Shapes that can be put together to make your total. The first to finish is the winner if the partner checks and all the correct possible solutions have been found. Discuss who finished first and why they may have been quicker.
5. Allow time for children to explore finding equivalent number bonds for several different numbers.

Extensions and questions

- Challenge children to use two of the same Numicon Shapes to try to make the scales balance for each number between 10 and 20.
- Look and listen for children who approach this systematically. Ask children to record their results e.g. Fig. 1.
- Discuss which numbers children could not find a balancing number bond for (odd numbers).
- Discuss what children notice about the results (all doubles).
- Listen for suggestions on how this might be altered. For example, if the numbers were multiplied by ten, can they make a balance?

Number	Numicon Shapes
10	5 + 5
11	
12	6 + 6

1



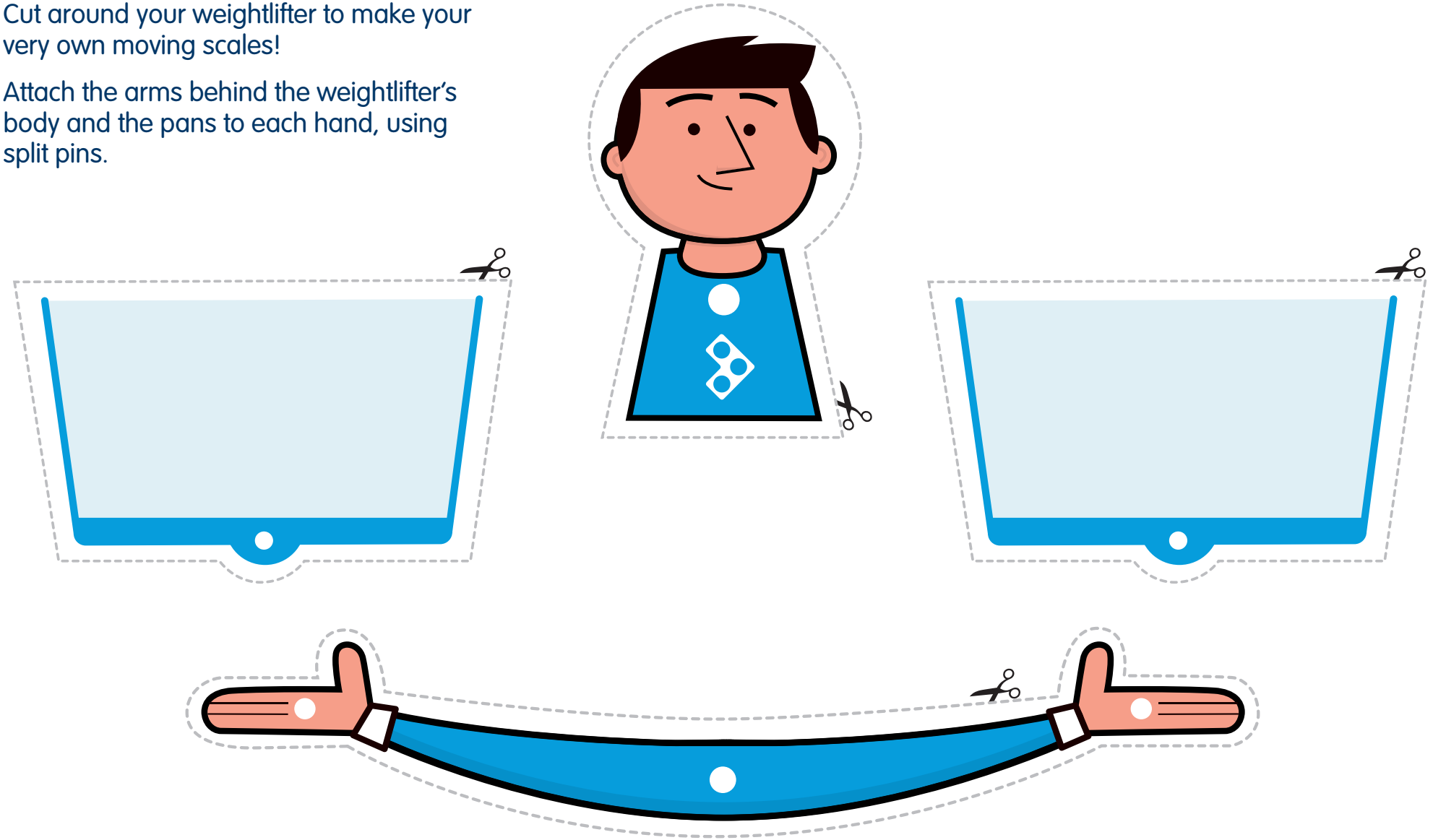
Numicon Summer Challenge Activity 1 playing board

Weightlifting | An adding and equivalence activity

numicon

Cut around your weightlifter to make your very own moving scales!

Attach the arms behind the weightlifter's body and the pans to each hand, using split pins.



Numicon Summer Challenge Activity 2

Swimming | A multiples of 10 and dividing activity

What you will need

- 1 copy of the playing board, enlarged to A3, per pair, cut and glued so each child has a lane
- Numicon Spinner with your choice of Spinner Overlay, depending on age/stage of understanding
- Numicon 10-shapes and Numicon 10s Number Line or 10-number rods and Numicon 1–100 cm Number Rod Track or Numicon 0–100 cm Number Line
- Small coloured counters to represent each player.

What to do

1. Work in groups of four. Choose a coloured counter for each child.
2. Explain the swimming race is won by the person who finishes first. Agree the distance of the race, e.g. 100 m, i.e. 100 on the Number Line or Number Rod Track. Agree that one 10-Shape or 10-rod is equal to 10 metres.
3. Ask each child to spin the spinner once. to determine who will go first. The child that spins the highest number goes first.
4. Players take it in turns to spin the Spinner and put that number of 10-shapes or 10-rods on the 10s Number Line or Number Rod Track. If a player spins 3, this is equal to 30 metres, so they put three 10-Shapes in their lane.
5. Discuss where everyone is after each spin and place coloured counters on the swimming pool playing board to track children's progress, agreeing how far each still has to swim.
6. The first to the 'finishing line' wins.

Extensions and questions

- Once there is a winner, find out how much further the other swimmers need to go.
- Discuss what would happen if a different spinner overlay was used.
- How could the game be adapted to show two lengths of the pool, i.e. double the distance? Where would that be on the Number Line or Number Rod Track?
- What if you can only swim half the distance shown on the Spinner, i.e. spin 6, but you can only put down three 10-Shapes or number rods?
- If the number on the Spinner has to be divided by 10, what would you use to show the swimmers' progress?
- Ask children if they could play the game using a different number Numicon Shape or number rod so they can explore other multiples, e.g. 5-shapes.

Numicon Summer Challenge Activity 2 playing board

Swimming | A multiples of 10 and dividing activity

numicon

Swimming Lane 1

START

GLUE

FINISH

Swimming Lane 2

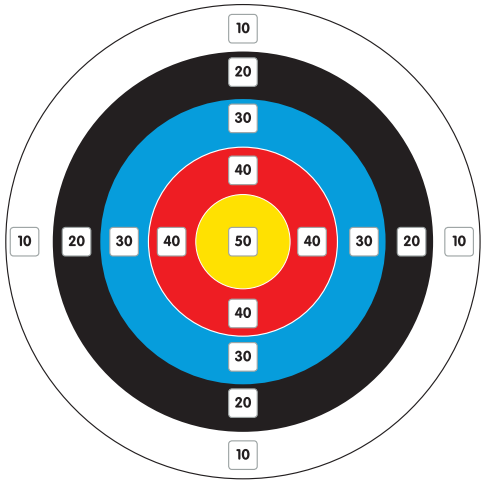
START

GLUE

FINISH

Numicon Summer Challenge Activity 3

Archery | An adding and subtracting activity



What you will need

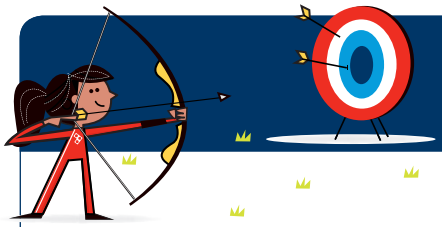
- 1 copy of the playing board, enlarged to A3, per pair with target scores filled in for them
- Plenty of Numicon Shapes, based on the numbers children can calculate with
- 1 Numicon Feely Bag per pair
- Small coloured counters to represent each player.

What to do

1. Talk about how archers aim to get their arrows as near to the middle of the target as possible. The nearer the middle, the higher their score. Explain that the children are going to try to get the highest score. To get their 'score', they will pick up a handful of Shapes and calculate the total. Decide beforehand which numbers are appropriate to put on the scoring circles, and which Shapes should go in the Feely Bag to best fit the children's ability. If children's total is not on the board they miss a turn. Alternatively, they round up or down and place their counter on the relevant ring of the Archery playing board.
2. Put the Shapes into the Feely Bag.
3. In pairs, take it in turns to remove a handful of Shapes.
4. Find the total from the Shapes collected.
5. Place a counter on the relevant ring of the archery playing board to indicate your total.
6. The person with the highest 'score' wins.

Extensions and questions

- How could you ensure your score is as high as possible? For example, you could decide in advance which Shapes to put in the Feely Bag.
- Both players take a handful of Shapes. Use a stopwatch and stop it as soon as a total is calculated. The player with the quickest time wins. If the game is played in this way, how would you change your strategy?
- Start with a total, and subtract your 'arrow scores' (the Shapes that you take out of the Feely Bag). How many 'arrows' do you need to shoot to get to zero?
- Based on the Shapes placed in the Feely Bag and the total selected, what's the smallest amount of 'arrows' you could use to get to zero? Can you record all the different combinations of Numicon Shapes you could use to reach zero with the smallest amount of arrows?



Numicon Summer Challenge Activity 3 playing board

Archery | An adding and subtracting activity

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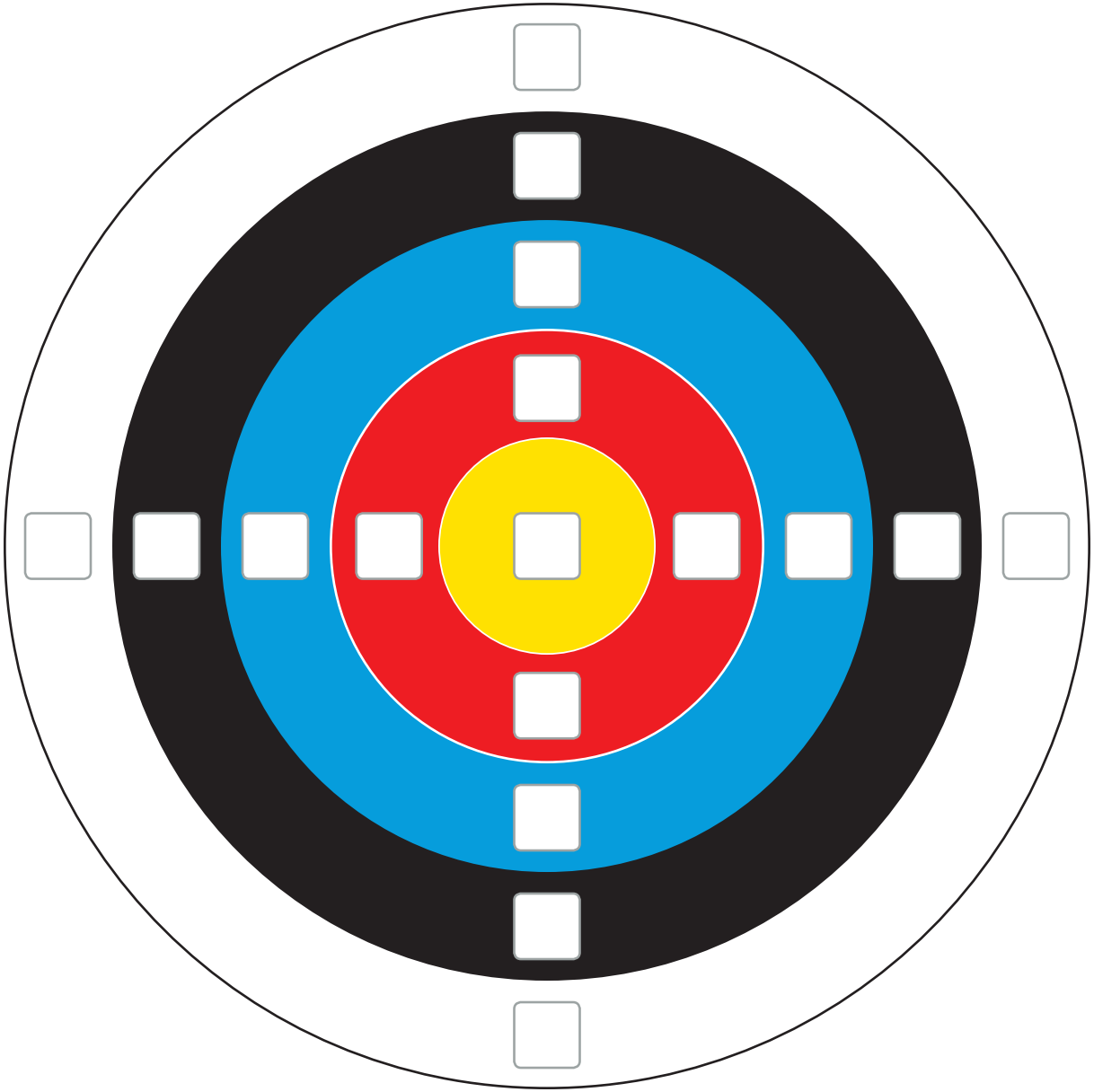
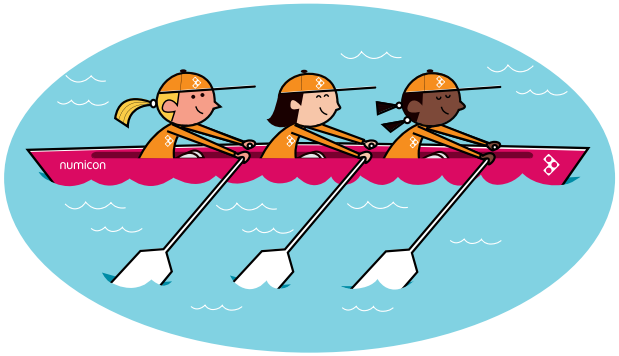


Numicon Summer Challenge Activity 4

Rowing | A multiplying activity



What you will need

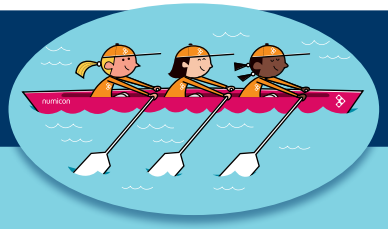
- 1 copy of the playing board per pair
- Number rods
- Numicon 2-, 3- and 5-Shapes
- A Numicon Feely Bag between each pair
- Paper and pencils.

What to do

1. Work in pairs.
2. Talk about teams rowing together. Teams can have 2, 4 or 8 rowers.
3. Use a 10-rod to be an oar.
4. How many 10-rods will you need for a team of 8? (Children place the rods on the rowing boat playing board to help them visualise this problem.)
5. Agree how many rowers in your rowing boat. The player may wish to draw an outline of their boat on a sheet of plain paper.
6. Put several 2-, 3- and 5-shapes in the Feely Bag. Each player takes out a Shape. This Shape decides the length of oar in metres their rowing team has. Calculate the total length of oars for your team. The first to calculate the correct answer is the winner. Repeat with different sized teams and different Numicon Shapes (appropriate to children's calculating range). Discuss who finishes first and why they may have been quicker. The purpose of the game is to see who can calculate their total quickest.

Extensions and questions

- If the 10-rod represents 1 metre, and the oars are 2 metres long, how many 10-rods will you need for a team of 8?
- What about if each oar is 3 metres long?
- Explore the number rods needed for different sized teams with different lengths of oar.
- If the 10-rod represents 1 metre, how could you calculate the number of rods needed if a team of 8 has oars that are 2½ metres long?



Numicon Summer Challenge Activity 4 playing board

Rowing | A multiplying activity

numicon

Numicon Summer Challenge Activity 5

Hurdles | A multiplying and dividing activity

What you will need

- 1 A4 copy of the playing board per team. To make the playing board, cut around the track and stick the three sections together.
- Number rods
- Pencils.

What to do

1. Work in pairs.
2. Using the running track playing board, explain to the children that they are going to work out how to space hurdles evenly along the running track using number rods.
3. Explain to children that between every 10-rod there will be one hurdle. Ask children to place 10-rods end-to-end along their track. Ask them how many hurdles will fit on the track. Children can use a pencil to mark where each hurdle will be.
4. If the 10-rod represents 10 metres, how far has the hurdler got to go from the start line to the finish line? What about to the last hurdle?

Extensions and questions

- What happens if you put in twice as many hurdles over the same distance? Which number rods would you use now?
- What if there needs to be 15 metres between the hurdles but the number of hurdles stays the same? What is the total distance now?
- Assume the 1-rod represents 1 metre. How many hurdles can be fitted if the distance between each is 3 metres (i.e. a 3-rod)?
- What happens to the number of hurdles if the track is twice as long?

Numicon Summer Challenge Activity 5 playing board

Hurdles | A multiplying and dividing activity

numicon

START

GLUE

GLUE

FINISH