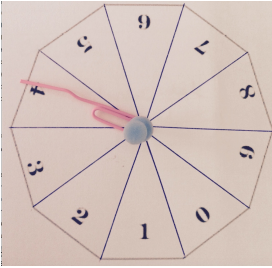


TARGET 100



LESSON STARTER GAME FOR THE WHOLE CLASS (OR TWO PLAYERS)

You will need a 0 to 9 spinner or ten cards.

See instructions for making spinners below.

Each player draws an addition grid like the one shown.

H	T	U
+		

Spin the spinner and all the players must write the digit in one of the top four boxes.

Once a number is written it cannot be changed.

Repeat three more times.

Then the learners add up their two 2-digit numbers.

The player (or players) with the total closest to 100 wins.

Score 1 point for a win. Repeat several times.

ALTERNATIVE VERSION OF THE TARGET 100 GAME.

Spin 6 times and each time the players write a digit in one of the boxes. Again they must add their numbers and the closest total to 100 wins

GAME FOR 2 PLAYERS

Each player draws an addition grid like one of those shown. They take turns to spin the spinner and each player decides which of their cells to fill in and can't change the position of the number once it is written in. After filling the top boxes, the players add up the numbers and write the total on the bottom line.

H	T	U
+		

HELP

To get a total close to 100 you should aim to enter 2 numbers close to 50 or 3 numbers close to 33.

NEXT

Play the game with a grid to multiply a 2-digit number by a 1-digit number or to with a grid to divide a 4-digit number by a 1-digit number.

TARGET 100

Play this game as a lesson starter for the whole class or in pairs. Use a 0 to 9 die or spinner.

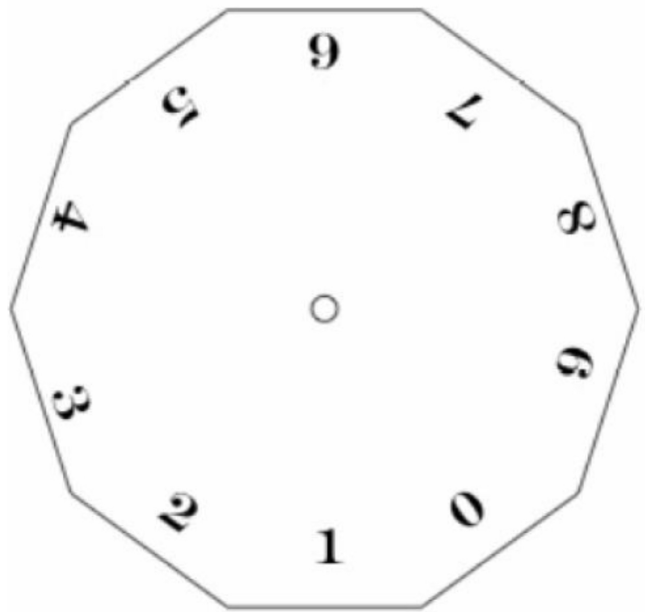
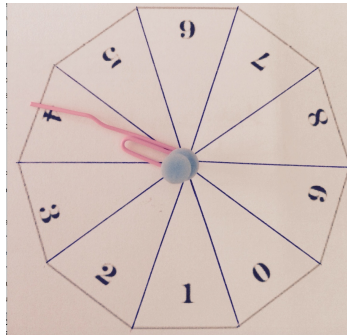
At each throw players choose where to put the digit to divide a 4 digit number by a one digit number. The closest answer to 100 wins.

MAKE A 0 – 9 SPINNER

To make your own spinner you will need a paper clip and a pin.

Mark in the lines in the template on the right as in the diagram and cut it out.

Open up the paper clip and pin the paper clip and the template down on a flat surface so that the paper clip spins easily.



If you want to make a spinner without using a pin you can hold down the template and the paper clip with the point of a pencil.

NOTES FOR TEACHERS

Diagnostic Assessment This should take about 5–10 minutes.

1. Write the question on the board, say to the class:
“Put up 1 finger if you think the answer is A, 2 fingers for B, 3 fingers for C and 4 fingers for D”.
2. Notice how the learners responded. Ask a learner who gave answer A to explain why he or she gave that answer and DO NOT say whether it is right or wrong but simply thank the learner for giving the answer.
3. Then do the same for answers B, C and D. Try to make sure that learners listen to these reasons and try to decide if their own answer was right or wrong.
4. Ask the class again to vote for the right answer by putting up 1, 2, 3 or 4 fingers. Notice if there is a change and who gave right and wrong answers. It is important for learners to explain the reason for their answer otherwise many learners will just make a guess.
5. If the concept is needed for the lesson to follow, explain the right answer or give a remedial task.

H	T	U
+		

Enter the 6 digits
0, 2, 3, 4, 5, 9
in the top 6 boxes to
make three 2-digit
numbers with a total as
close to 100 as possible.
The closest you can get
to 100 is:

- A. 122 C. 104
B. 103 D. 113

The correct answer is C:
Make the tens 2, 3 and 4 and the
units 0, 5 and 9

<https://diagnosticquestions.com>

Why do this activity?

The game develops the learners’ number sense and gives practice in estimating the results of calculations. Doing well in this game depends on an understanding of place value and how and why the addition algorithm works. The game can be used at different times as a lesson starter. When learning how to do such calculations the game will help to deepen the learners’ understanding of the method as well as giving practice. Subsequently the game can be used from time to time to give learners practice in doing calculations. Players should check their own and each others’ calculations without using a calculator. You might introduce additional penalty points for incorrect calculations to give extra incentive to work accurately.

The game also develops an appreciation of probability as it requires judgement about where to place the numbers in the grid and whether a ‘better’ number for that position is likely to come up.

The game can also be changed to a multiplication or division calculation or to aim for a different target total.

Learning objectives

In doing this activity students will have an opportunity to:

- develop numeracy and skills at performing addition of 2 digit numbers;
- develop understanding place value and methods of calculation.

Generic competences

In doing this activity students will have an opportunity to **think flexibly** and be creative and innovative.

Suggestions for Teaching

Start with the formative assessment using the diagnostic quiz. Ask the learners if any of them got the same total in a different way and let the class find the total in as many different ways as possible. For example, in the diagnostic quiz there are 8 ways to get a total of 104 and more if you don't allow for commutativity:

$$20 + 35 + 49 = 104; \quad 20 + 39 + 45 = 104; \quad 25 + 39 + 40 = 104; \quad 25 + 30 + 49 = 104; \\ 29 + 30 + 45 = 104; \quad 29 + 35 + 40 = 104$$

To play the game as a whole class, first ask the learners to copy the grid into their workbooks. Then the teacher spins the spinner and calls out the numbers and the learners fill in the numbers in their grids. Then ask learners who have got an answer near the target number to come to the board and write up their answer. If anyone has got closer to the target they should show what they have done. After deciding on the winner ask the class if anyone could have got closer to the target if they had known all the numbers before filling any numbers in.

You can make sets of number cards, or use old playing cards, and the cards can be shuffled and one drawn at random each time. If you have enough spinners, or 0 – 9 dice, or sets of number cards you can organise for learners to play the game in pairs in your lesson. In this case the first player to get 5 points is the winner. The learners could use a different way of scoring. They could get penalty points for the difference between their total and the target number and add up their penalty points. They should play a few games until one of the players gets 100 penalty points and loses the match.

Key Questions

You are making a total of 100 with 3 numbers. About how big do you want those numbers to be?

Follow up

Play the game with a grid to multiply a 2-digit number by a 1-digit number or to with a grid to divide a 4-digit number by a 1-digit number.

Also see Target 1000 <https://aiminghigh.aimssec.ac.za/years-4-7-target-1000/>

Note: The Grades or School Years specified on the AIMING HIGH Website correspond to Grades 4 to 12 in South Africa and the USA, to Years 4 to 12 in the UK and up to Secondary 5 in East Africa. New material will be added for Secondary 6.

For resources for teaching A level mathematics see <https://nrich.maths.org/12339>

Note: The mathematics taught in Year 13 (UK) and Secondary 6 (East Africa) is beyond the school curriculum for Grade 12 SA.

	Lower Primary or Foundation Phase Age 5 to 9	Upper Primary Age 9 to 11	Lower Secondary Age 11 to 14	Upper Secondary Age 15+
South Africa	Grades R and 1 to 3	Grades 4 to 6	Grades 7 to 9	Grades 10 to 12
USA	Kindergarten and G1 to 3	Grades 4 to 6	Grades 7 to 9	Grades 10 to 12
UK	Reception and Years 1 to 3	Years 4 to 6	Years 7 to 9	Years 10 to 13
East Africa	Nursery and Primary 1 to 3	Primary 4 to 6	Secondary 1 to 3	Secondary 4 to 6