



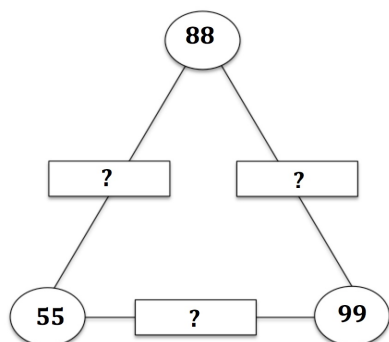
This INCLUSION AND HOME LEARNING GUIDE

**suggests related learning activities for all ages from 4 to 18+ with
a common starter on the theme of CALCULATION**

Choose what seems suitable for the age or attainment level of your learners

The original CHECKIT CHALLENGE was designed for Years 4 to 8

THE CHECKIT COLLECTION OF GAMES



All Checkit Games are played by 2 players or 2 teams.

The games are suitable for all ages because you can choose the type of numbers and the operation that you suits you.

You can play this game with

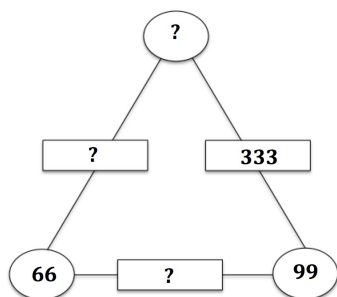
- (1) addition and subtraction or with
- (2) multiplication and division, whichever you choose.

The numbers on the edges of the triangle are the sum in Game 1 and the product in Game 2 of the numbers at the vertices.

In this example Game 1 would have 143, 187 and 154 on the edges and Game 2 would have 4840, 8712 and 5445 on the edges.

1. The players must agree whether to play version (1) or version (2) of the game.
2. The players must agree on what numbers are allowed. For example whole numbers, or integers, or fractions, or decimals, or powers of 2, 3, 4 and 7 or, to keep the numbers small, just 0 to 10 at the vertices.
3. Flip a coin to decide who goes first.
4. Players take it in turns to fill in a number in an empty box.
5. Players check if the numbers entered are correct. If a player makes a mistake and is challenged by an opponent before that opponent enters another number, then he loses the game and his opponent wins a point.
6. When they have put numbers in all 6 boxes, both players check. If there are any mistakes then both players lose a point. If everything is correct both players win a point.
7. The first player to score 5 points wins the game.

HELP



This is another example for Game 1.

Work out the numbers to go in the empty boxes.

To find the number to go in the top box remember that $? + 99 = 333$.

Click [here](#) for the answer.

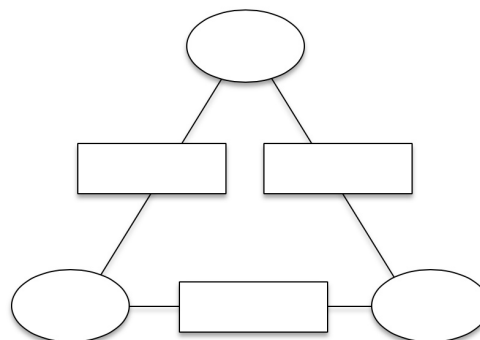
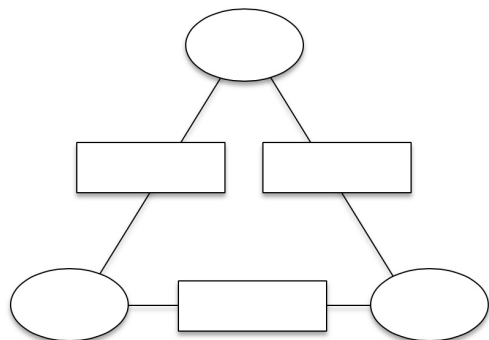
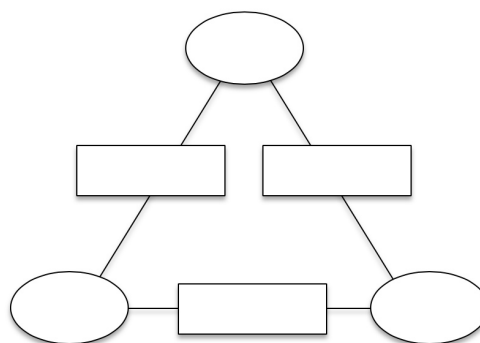
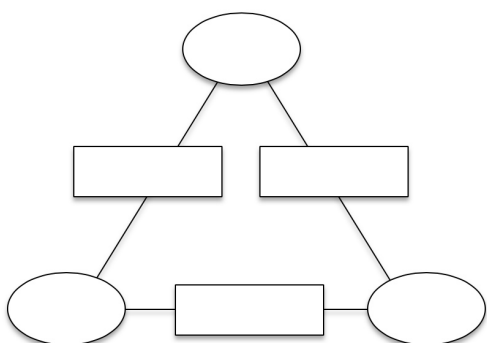
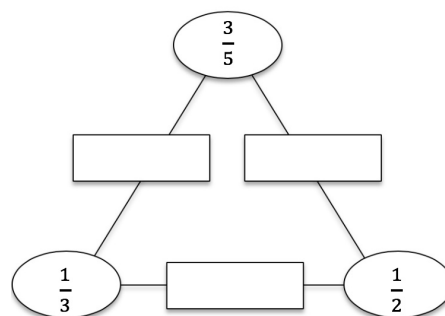
NEXT

Complete this Checkit for both addition and multiplication.

Click [here](#) for the answers.

Checkit Game Version 3

1. The players must agree on the type of numbers, on the operation to be used and on the time allowed.
2. Both players draw a Checkit frame and fill in 3 of the 6 numbers.
3. They swop the frames and, in the given time, players fill in the other 3 numbers and score a point for each correct number.
4. Play 3 rounds and the player with the highest score wins.

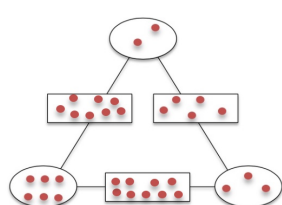


INCLUSION AND HOME LEARNING GUIDE

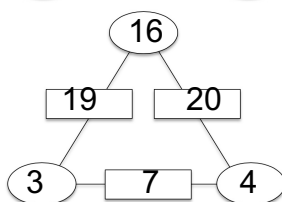
THEME: CALCULATION

Young children

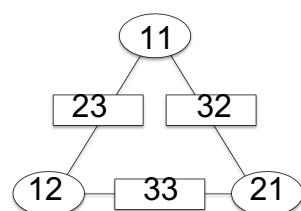
Examples of game results for different rules are given. There are many other possibilities.



Counting dots with +



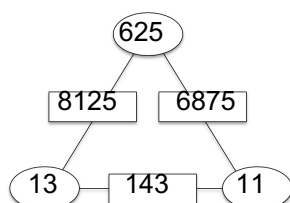
Whole numbers up to 20 with +



Whole numbers up to 100 with +

Upper Primary

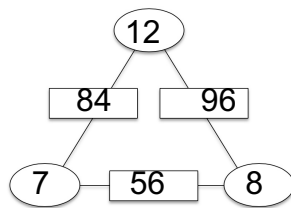
1. The players must agree on what numbers are allowed. For example whole numbers, or integers, or fractions, or decimals, or powers of 2, 3, 4 and 7 or, to keep the numbers small, just 0 to 10 at the vertices.
2. Flip a coin to decide who goes first.
3. Players take it in turns to fill in a number in an empty box.
4. Players check if the numbers entered are correct. If a player makes a mistake and is challenged by an opponent before that opponent enters another number, then he loses the game and his opponent wins a point.
5. When they have put numbers in all 6 boxes, both players check. If there are any mistakes then both players lose a point. If all is correct both players win a point.
6. The first player to score 5 points wins the game.



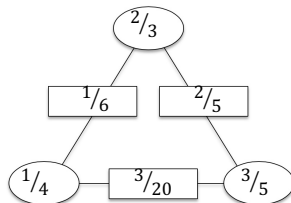
Examples of game results for different rules are given.

There are many other possibilities.

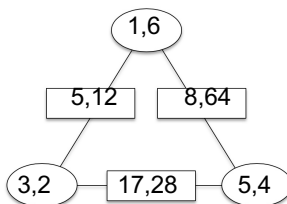
Whole numbers up to 10 000 and $\times$



Multiplication tables up to 12×12

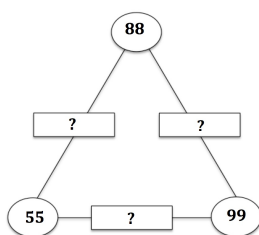


Multiplication of fractions



Decimals (1 and 2 digits) with $\times$.

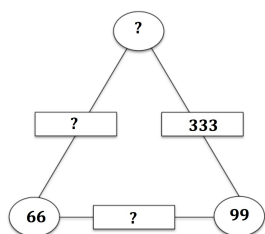
Use decimal points (.) or commas (,) according to the usual practice in your country.



You could start with this challenge and addition to make sure everyone understands what the problem involves.

Give examples of simple calculations to emphasise the idea of inverse operations, for example $3 + 5 = 8$ and $8 - 5 = 3$ shows that adding 5 and subtracting 5 are inverse operations.

Then give the learners more challenges, either with 2 digits or this challenge with 3 digit numbers.



Ask the learners to work individually for a few minutes to find the other 3 numbers. If there is a group then ask them to work together and to discuss their methods of finding the answers.

They should:

1. Ask "Do we all agree on the answer?" and more importantly
2. give EVERYONE in the group time to explain how they worked it out.
3. As a group, decide whose method they think is most efficient and why.

Playing one of the versions of the game in pairs gives practice in mental arithmetic. If needed the learners can do pencil and paper calculations, but a calculator should only be used if there is a disagreement when checking and answer.

Key questions

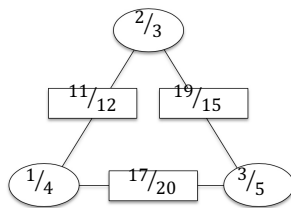
Can you explain how you did that calculation?

What calculation would you do to check that answer? Why?

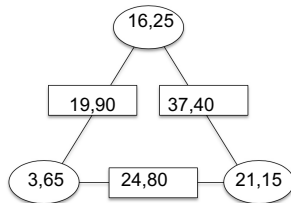
Lower Secondary

1. The players must agree on what numbers are allowed. For example whole numbers, or integers, or fractions, or decimals, or powers of 2, 3, 4 and 7 or, to keep the numbers small, just 0 to 10 at the vertices.
2. Flip a coin to decide who goes first.
3. Players take it in turns to fill in a number in an empty box.
4. Players check if the numbers entered are correct. If a player makes a mistake and is challenged by an opponent before that opponent enters another number, then he loses the game and his opponent wins a point.
5. When they have put numbers in all 6 boxes, both players check. If there are any mistakes then both players lose a point. If it's all correct both players win a point.
6. The first player to score 5 points wins the game.

Examples of game results for different rules are given. There are many other possibilities. As a starter for a revision lesson a Checkit Game can be played by any group, or whole class, in 2 teams. It involves one of the operations and its inverse operation. Write the frame with 2 numbers in it, then the teams must take turns to give the other 4 numbers.

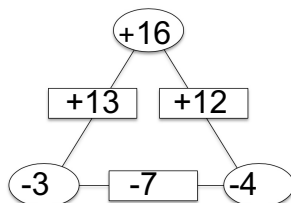


Addition of fractions

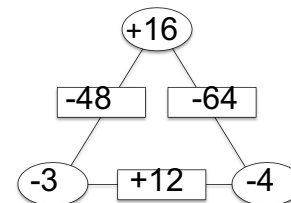


Decimals (2 digits) and +

Use decimal points (.) or commas (,) according to the usual practice in your country.



Integers and +



Integers and $\times$.

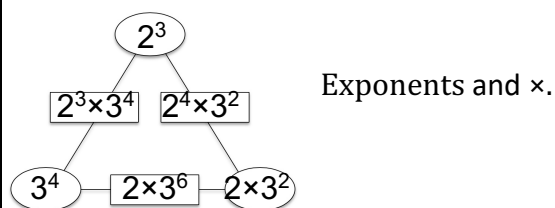
Year 10 – 13

As a starter for a revision lesson a Checkit Game can be played by 2 players or by any group in 2 teams. It involves one binary operation and its inverse operation.

1. The players must agree on what numbers are allowed. For example whole numbers, or integers, or fractions, or decimals, or powers of 2, 3, 4 and 7 or, to keep the numbers small, just 0 to 10 at the vertices.
2. Write the frame with 2 numbers in it, then the teams must take turns to give the other 4 numbers.
3. Flip a coin to decide who goes first.
4. Players take it in turns to fill in a number in an empty box.
5. Players check if the numbers entered are correct. If a player makes a mistake and is challenged by an opponent before that opponent enters another number, then he loses the game and his opponent wins a point.
6. When they have put numbers in all 6 boxes, both players check. If there are any mistakes then both players lose a point. If it's all correct both players win a point.
7. The first player to score 5 points wins the game.

Examples of game results for different rules are given on previous pages.

There are many other possibilities including for, example, exponents.



Why do this activity?

This game changes routine drill and practice in doing calculations of all types into an enjoyable activity. It also involves the use of inverse operations in a non-trivial way to check the calculations. It can be used to reinforce familiarity with mathematical language and the understanding of the concept of inverse operations.

Learning objectives

In doing this activity students will have an opportunity to:

- develop and improve numeracy skills;
- deepen understanding of the concept of inverse operations and its application to checking calculations.

Generic competences

In doing this activity students will have an opportunity to:

- communicate, exchange ideas, criticise, and present information and ideas to others;
- play games without being over anxious to win;
- co-operate - to collaborate/work in a team, have empathy with others, listen to different points of view.

Follow up

CHECKIT <https://aiminghigh.aimssec.ac.za/years-4-8-checkit/>

TARGET GAMES COLLECTION

<https://aiminghigh.aimssec.ac.za/target-games-collection-suitable-for-all-ages/>

FIND THE NUMBERS <https://aiminghigh.aimssec.ac.za/years-6-7-find-the-numbers/>

OLYMPIC MAGIC <https://aiminghigh.aimssec.ac.za/years-9-12-olympic-magic/>



Go to the AIMSSEC AIMING HIGH website for lesson ideas, solutions and curriculum links: <http://aiminghigh.aimssec.ac.za>

Subscribe to the MATHS TOYS YouTube Channel

<https://www.youtube.com/c/mathstoys>

Download the whole AIMSSEC collection of resources to use offline with the AIMSSEC App see <https://aimssec.app> or find it on Google Play.

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 school years up to Secondary 5 in East Africa.

New material will be added for Secondary 6.

For resources for teaching A level mathematics (Years 12 and 13) see <https://nrich.maths.org/12339>

Mathematics taught in Year 13 (UK) & Secondary 6 (East Africa) is beyond the SA CAPS curriculum for Grade 12

	Lower Primary Approx. Age 5 to 8	Upper Primary Age 8 to 11	Lower Secondary Age 11 to 15	Upper Secondary Age 15+
South Africa	Grades R and 1 to 3	Grades 4 to 6	Grades 7 to 9	Grades 10 to 12
East Africa	Nursery and Primary 1 to 3	Primary 4 to 6	Secondary 1 to 3	Secondary 4 to 6
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