## Mathopoly

## Y9 Mathematics Revision Game




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## Mathopoly

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## Teacher Guide

## Introduction

This booklet contains all the information and many of the resources needed to play Mathopoly.
This maths revision game is intended for use as a fun revision session for year 9 students. It covers the topics examined in year 9: numbers; algebra; shape, space and measurement; and handling data. However, it is not all encompassing of the year 9 curriculum.

The game is to be played in groups of 4 or 5 .
The game should be completed within a one hour lesson, but may be shorted if necessary.
The questions cover levels 5 to 8 . All level 8 questions are marked and, if necessary, can be removed from the game, depending on the ability of the group.

The score sheets include a column for the students to record the topics of questions they have answered, in order to assess their strengths and weaknesses.

## Resources

Included in booklet to print
Game board
Question cards
Score Sheet

## To be provided by school

Jotting paper $\mathrm{x} \mathrm{n}^{\mathrm{o}}$ of students playing
Place markers $\mathrm{x} \mathrm{n}^{\circ}$ of students playing
Felt pens
Dice x 1
Calculators
Please ensure that the felt pens are the same colour as the place markers.

## Preparation

Print the following:
Game board (on A3 if possible, if not print question cards A5)
Set of question cards
Score sheet $\mathrm{x} \mathrm{n}^{\circ}$ of students playing
Rules
Cut out question cards and score sheets.
Separate the question cards into subjects and lay face down on the game board.

## Rules

Each player starts with 50 points.

Each player chooses a place marker and places it on the start square.

The player with the highest role goes first.

The first player roles the dice and moves the indicated number of spaces.

The player then answers a question on the topic of that square.

The question is read by another player who does not own the square.

If the player answers correctly they receive the number of points on the card and own the square.

Ownership of a square is notated by drawing a dot of the same colour of the owners place marker on the square.

If the player answers incorrectly the number of points on the card are deducted from the player.
If the square is not owned and the player answers incorrectly the square remains not owned.

If the square is owned and the player answers incorrectly the owner of the square may answer the question. If the owner answers correctly they receive the points on the card. If the owner answers incorrectly no points are deducted.

If a player lands on a square which they own no points are deducted for an incorrect answer.

Game play continues until all but one of the players are bankrupt, that is have 0 points, or an agreed target score has been reached by one of the players.

## Bibliography

Mapp, F. C. (2006) KS3 Success Revision Guide Mathematics SATs Levels 5 - 8; London: Letts Educational


## Appendix

| Name: |  |
| :---: | :---: |
| Marker colour: |  |
| Point | Topic |
| 50 |  |
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## Question Cards

| Number <br> Name all the factors of 32. $1,2,4,8,16,32$ | Number <br> Name all the factors of 100. $1,2,4,5,10,20,25,50,100$ |
| :---: | :---: |
| Score: 3 | Score: 2 |
| Number | Number |
| What is the definition of a prime number? | Name all the prime numbers between 10 and 20 ? |
| A prime number is a number with only two factors, 1 and itself. | 11, 13, 17, 19 |
| Score: 3 | Score: 4 |
| Number | Number |
| What is the reciprocal of $\frac{5}{6}$ ? | What is the highest common factor? |
| $\frac{6}{5}=1 \frac{1}{5}$ | The highest common factor is the highest factor that two numbers have. |
| Score: 3 | Score: 3 |
| Number | Number |
| What is the lowest common multiple of 6 and 8 ?$24$ | What are the first 4 squared numbers? |
|  |  |
| Score: 4 | Score: 3 |

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| Number <br> What is $0.6 \div 10$ ? $0.06$ | Number <br> What is $75 \times 1000$ ? $75000$ |
| :---: | :---: |
| Score: 4 | Score: 2 |
| Number <br> What is $\frac{3}{4}+\frac{1}{2}$, express as a mixed number. $1 \frac{1}{4}$ | Number <br> What is $\frac{4}{6}+\frac{2}{3}$ ?, express as an improper fraction. $\frac{8}{6}$ |
| Score: 4 | Score: 3 |
| Number <br> What is $\frac{5}{7}-\frac{2}{7}$ ? $\frac{3}{7}$ | Number <br> In a basket of 20 apples $\frac{3}{4}$ are red. How many apples are red? $15$ |
| Score: 2 | Score: 4 |
| Number | Number |
| In a bag of balls there are red, green and yellow balls. $\frac{1}{6}$ of the balls are red, $\frac{2}{3}$ of the balls are green. What fraction are yellow? | What is 5.776 to 2 dp ? 5.78 |
| $\frac{1}{6}$ <br> Score: 5 | Score: 3 |


| Number <br> What is $3 \times 0.1$ ? $0.3$ | Number <br> Put these numbers order of size from biggest to smallest; 4.45, 2.34, 3.67, 2.56, 4.32. <br> $4.45,4.32,3.67,2.56,2.34$ |
| :---: | :---: |
| Score: 2 | Score: 3 |
| Number <br> Find $45 \%$ of $£ 670$ $£ 301.50$ | Number <br> Express $\frac{18}{20}$ as a percentage. 90\% |
| Score: 5 | Score: 3 |
| Number <br> Express $\frac{56}{80}$ as a percentage. $70 \%$ | Number <br> My house is now worth 10\% more than when I bought it. I bought it for $£ 120,000$, what is it worth now? £132,000 |
| Score: 4 | Score: 5 |
| Number | Number |
| My car decreased in value by 4\% each year that I owned it. I bought it in 2002 for $£ 3000$ how much did I sell it for in 2006?$£ 2548.04$ | A shop keeper bought a bag of potatoes for $£ 1.15$, he then sold them for $£ 2.25$. What was his percentage profit? |
|  | 95.7\% |
| Score: 5 | Score: 5 |





| Algebra <br> Expand the brackets $4(\mathrm{ad}+\mathrm{d})+\mathrm{a}(\mathrm{d}+3 \mathrm{f})$ $5 a d+4 d+3 a f$ | Algebra <br> Solve the inequality $5-x \leq 3 x+2$ $x \leq \frac{3}{4}$ |
| :---: | :---: |
| Score: 4 | Score: 4 |
| Algebra | Algebra |
| Danielle has s number of shoes. Rachael has 3 times as many necklaces, write a formula to express this. $S=3 n$ | Simplify $5 \mathrm{a}+2 \mathrm{a}-7 \mathrm{~b}$. $7 a-7 b$ |
| Score: 3 | Score: 2 |
| Algebra | Algebra |
| Simplify $3 \mathrm{n} \times 4 \mathrm{~m}$. | If $a=2, n=6, f=0.5$, <br> Find the value of $f(12 a-3 n)$. |
|  | 3 |
| Score: 3 | Score: 4 |
| Algebra | Algebra |
| Expand the brackets 3(d+2a). | Expand the brackets $(x+2)(x+4)$. |
| $3 d+6 a$ | $x^{2}+6 x+8$ |
| Score: 2 | Score: 4 |

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| Shape, space and measurement <br> What size are the angles in an equilateral triangle? $60^{\circ}$ | Shape, space and measurement <br> How many angles are equal in an isosceles triangle? |
| :---: | :---: |
| Score: 2 | Score: 2 |
| Shape, space and measurement <br> What is a chord? <br> A chord is a straight line that joins two points on the circumference. | Shape, space and measurement <br> What is an arc? <br> An arc is a part of the circumference. |
| Score: 4 | Score: 3 |
| Shape, space and measurement <br> What is the formula linking radius and diameter? $d=2 r$ | Shape, space and measurement <br> What is an acute angle? <br> An angle between $0^{\circ}$ and $90^{\circ}$ |
| Score: 4 | Score: 3 |
| Shape, space and measurement <br> What is a reflex angle? <br> An angle between $180^{\circ}$ and $360^{\circ}$ | Shape, space and measurement <br> Finish the sentence: Angles at a point add up to... $360^{\circ}$ |
| Score: 3 | Score: 4 |


| Shape, space and measurement <br> Finish the sentence: <br> Angles in a quadrilateral add up to... $360^{\circ}$ | Shape, space and measurement <br> Finish the sentence: <br> Angles in a triangle add up to... $180^{\circ}$ |
| :---: | :---: |
| Score: 5 | Score: 4 |
| Shape, space and measurement <br> Finish the sentence: <br> Alternate angles are... <br> Equal | Shape, space and measurement <br> Finish the sentence: Corresponding angles are... <br> Equal |
| Score: 5 | Score: 5 |
| Shape, space and measurement <br> What is tessellation? | Shape, space and measurement <br> What is the difference between an angle and a bearing? |
| Tessellation is a pattern of 2 d shapes which fit together perfectly. | A bearing is measured from north; an angle is measured between two lines. |
| Score: 4 | Score: 5 |
| Shape, space and measurement | Shape, space and measurement |
| What is the axis of reflection? | Write down Pythagoras' theorem. |
| The line which a mirror would be placed to reflect the shape. | $a^{2}+b^{2}=c^{2}$ |
| Score: 4 | Score: 4 |


| Shape, space and measurement <br> Using Pythagoras' theorem find the length of the hypotenuse if $a=4 \mathrm{~cm}$ and $b=5 \mathrm{~cm}$ $41$ | Shape, space and measurement <br> Point $A$ is at $(3,4)$, point $B$ is at $(6,7)$ what is the length of line $A B$ ? $18$ |
| :---: | :---: |
| Score: 3 | Score: 5 |
| Shape, space and measurement <br> Sine $=$ $\frac{O}{H}$ | Shape, space and measurement <br> Cosine= $\frac{A}{H}$ |
| Score: 4 | Score: 4 |
| Shape, space and measurement <br> Tangent $=$ $\frac{O}{A}$ | Shape, space and measurement Change 456 cm into m . $4.56 \mathrm{~m}$ |
| Score: 4 | Score: 2 |
| Shape, space and measurement | Shape, space and measurement |
| If it takes Jill 30 minutes to walk 2 km , how fast is she travelling? $1.11 \mathrm{~m} / \mathrm{s}$ | What is the area of a rectangle? $A=1 w$ |
| Score: 5 | Score: 2 |


| Shape, space and measurement <br> What is the area of a triangle? <br> $A=0.5 \times$ base $\times$ perpendicular height. | Shape, space and measurement <br> What is the area of a trapezium? $A=0.5(a+b) h$ |
| :---: | :---: |
| Score: 3 | Score: 4 |
| Shape, space and measurement <br> A parallelogram with base 3 cm and perpendicular height 4 cm , what is its area? $12 \mathrm{~cm}$ | Shape, space and measurement <br> What is the formula for the circumference of a circle? $C=\pi d \text { or } C=2 \pi r$ |
| Score: 5 | Score: 4 |
| Shape, space and measurement | Shape, space and measurement |
| The area of a shape is 3 cm . If the lengths are enlarged by scale factor 3 what is the new area? | What is the volume of a prism? $\begin{aligned} & \text { Volume }=\text { area of cross section } x \text { length } \\ & \qquad V=a l \end{aligned}$ |
| Score: 5 | Score: 4 |
|  | L8 |
| Shape, space and measurement | Shape, space and measurement |
| A cylinder has a radius of 2 cm and a height of 5 cm . What is its volume? | Does this formula represent a length, area or volume? $6 a b+c^{2}$ |
| $20 \pi$ or 62.8 | Area |
| Score: 5 | Score: 5 |






