

Mathematics

Stills from our new title/series



Numbers and Algebra

This series explores concepts from the numbers and algebra strand of mathematics.

Index Notation and Prime Factors

This video provides a short lesson on index notation and representing whole numbers as products of powers of prime numbers. Examples of raising base numbers to different powers are shown. Prime and composite numbers are explained and factor trees are used to express numbers as products of their prime factors, determine HCF (highest common factor) and LCM (lowest common multiple). Step by step graphics are included which are ideal for reinforcing concepts.

ACMNA149

Additional Resources

- Worksheet
- Suggested Responses



2014 | 6 min | Australia | CC | AR

Perfect Squares and Square Roots

This video investigates and uses square roots of perfect square numbers to create and solve equations. Viewers will learn how to determine the square roots of perfect squares, and determine if a number is a perfect square using technology and factor trees. Step by step graphics are included which are ideal for reinforcing concepts.



2014 | 4 min | Australia | CC | AR

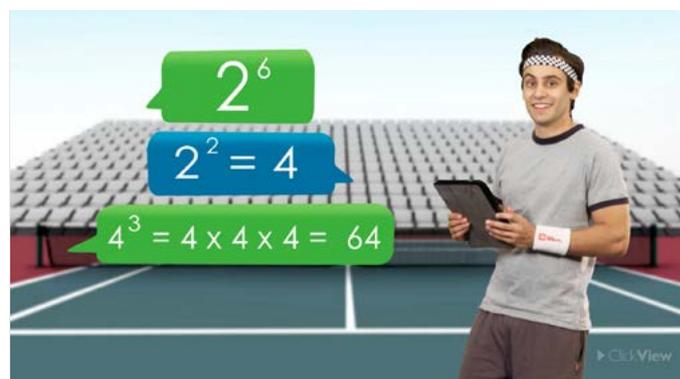
ACMNA150

Additional Resources

- Worksheet
- Suggested Responses

Basic Index Laws: Game, Set, Match

This video demonstrates how to use index notation to establish index laws with positive integral indices and the zero index. Using the example of Grand Slam tennis tournaments, our narrator constructs his own school based tennis tournament draw using index laws with two as the base number. Viewers also learn how to multiply and divide numbers in index form with the same base. This program is ideal for applying mathematical concepts to real world situations.



2014 | 5 min | Australia | CC | AR

ACMNA182

Additional Resources

- Worksheet
- Suggested Responses

Best Buys: Buying or Making Sandwiches

A group of friends are planning a lunch and compare the costs of pre-made lunches versus making it themselves. They investigate their options by comparing total costs and per person costs. Calculations are determined with and without digital technologies. This resource is ideal for applying mathematical concepts to real world situations.



2014 | 4 min | Australia | CC | AR

ACMNA174

Additional Resources

- Worksheet
- Suggested Responses

Calculating Profit: Earning Your Bread and Butter

Our presenter is interested in running her own café and decides to see what profit can be made from selling sandwiches. She works through the individual costs of sandwich ingredients to compare against café sandwich prices, then calculates her potential profit (percentage). She quickly learns there's more to her costs than just ingredients. This program is ideal for applying mathematical concepts to real world situations.

ACMNA189

Additional Resources

- Worksheet
- Suggested Responses



2014 | 4 min | Australia | CC | AR

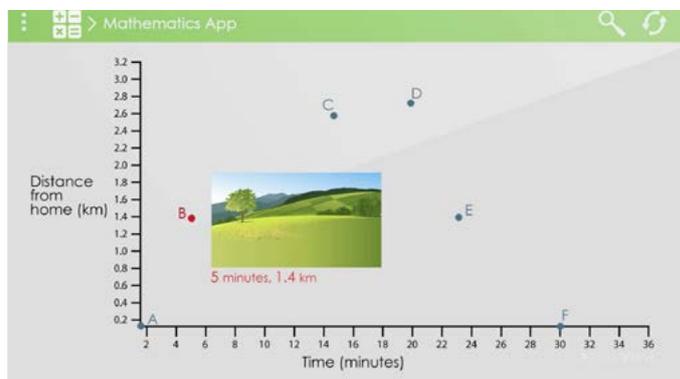
Graphing Distance and Time: A Runner's Story

This video follows a runner graphing his running distance and speed. He explains what happened along the route that affected his speed, translating this information onto a graph and accounting for the varying steepness of gradients between different points along his graphed journey. This is an excellent resource for applying mathematical concepts to real world situations.

ACMNA180

Additional Resources

- Worksheet
- Suggested Responses



2014 | 4 min | Australia | CC | AR

Destination Distances on a Cartesian Plane

When the Smithton River floods five local towns, a plane needs to drop supplies at each. A route needs to be determined that will reach the most affected areas first, while ensuring the plane has enough fuel between stops, and that the pilot complies with regulations about consecutive flying hours. Follow the relief operation as we use a Cartesian plane to determine the distances between each town and plan a successful operation. Strategies used include Pythagoras' Theorem and graphing software.

ACMNA214

Additional Resources

- Worksheet
- Suggested Responses



2014 | 6 min | Australia | CC | AR

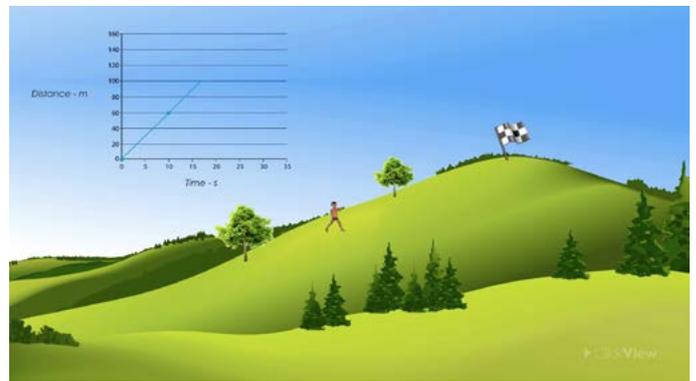
Line Graphs: Gradients and Midpoints

This video follows a sprinter graphing her distance and speed for two separate sprints. The first sprint is at a constant speed, resulting in a straight line graph. In the second sprint, her graph reflects three distinct intervals as her speed differs over the course. Follow along as she determines gradients, midpoints, her average speeds for both sprints, as well as her speeds at different intervals. This is an excellent resource for applying mathematical concepts to real world situations.

ACMNA294

Additional Resources

- Worksheet
- Suggested Responses



2014 | 5 min | Australia | CC | AR

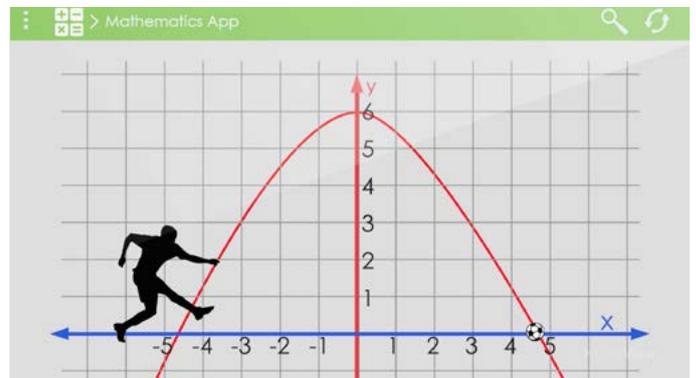
Graphing Simple Parabolas and Circles

This video begins with a short introduction of everyday applications of circles and parabolas. Next, basic parabolas and circles are graphed using quadratic equations. This program is ideal for reinforcing concepts.

ACMNA296

Additional Resources

- Worksheet
- Suggested Responses



2014 | 4 min | Australia | CC | AR

Simultaneous Equations on the Golf Course

This video demonstrates how to solve simultaneous equations, using the example of golfers determining par and handicaps. Substitution, elimination and graphing software methods are all used to solve equations. This resource is ideal for applying mathematical concepts to real world situations.

ACMNA237

Additional Resources

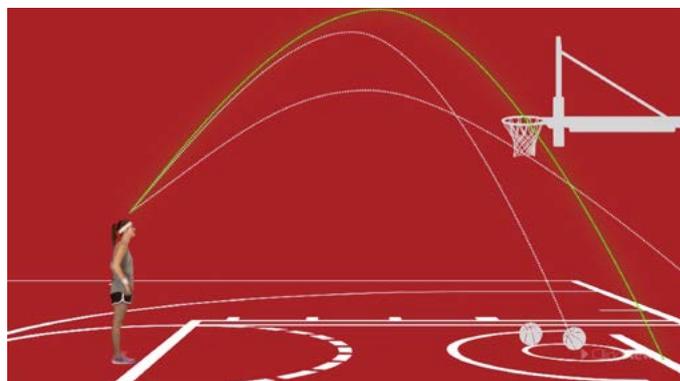
- Worksheet
- Suggested Responses



2014 | 5 min | Australia | CC | AR

Basketball, Parabolas and Circles

There's a lot of geometry on a basketball court! This video explores the connection between algebraic and graphical representations of relations such as simple quadratics, circles and exponentials through examples of lines on a basketball court, and the trajectory of free throws. This program is ideal for reinforcing concepts.



2014 | 5 min | Australia | CC | AR

ACMNA239

Additional Resources

- Worksheet
- Suggested Responses

Solving Quadratic Equations in Cricket and Rowing

Our presenter applies algebraic knowledge of quadratic equations to two sports events. First, he determines the height of a batted cricket ball and the amount of time it is in the air. Next, he determines the speed at which a rower travels upstream and downstream. This short video is ideal for applying mathematical concepts to real world situations.



2014 | 5 min | Australia | CC | AR

ACMNA241

Additional Resources

- Worksheet
- Suggested Responses