Cotswold Edge Sixth Form

Subject:	Maths @ CSS	**Assessment Point 1 -** Coursework

Title of the project:	Surds and indices
Due date: First lesson back September 2018	
Learning skills and their place in the specification	Research and analysis To help students to review a key topic used in A level Mathematics
Specification link	http://filestore.aqa.org.uk/resources/mathematics/specifications/AQA-7357-SP-2017.PDF
Tasks set	• Match the equivalent surd expressions • Where there is no equivalent expression given, write one • Be aware, not all matches are pairs
How this links to the exam specification	Surds are a key topic throughout A level Mathematics. These skills will be needed throughout the AS and A level papers that combine Core and Mechanics.
How to complete the task:	See attached information
Resources or links	Use Higher GCSE revision guide. Mymaths. Mathswatch and the internet.
Staff contact and email address:	Christopher.Chapman@chippingsodburyschool.com Emma.lynch@chippingsodburyschool.com
Number of learning hours it will take to complete	1-2hrs (Don't forget there is also a second and third task) Minimum 10 hours total for all tasks

Here you are matching the tiles.

$(2+\sqrt{3})^2$	$11+6\sqrt{2}$	$17+12\sqrt{2}$	$12-6\sqrt{3}$
$6(2-\sqrt{3})$	$7+4\sqrt{3}$	$(3-\sqrt{3})^2$	$(1+\sqrt{3})(3+\sqrt{3})+1$
$(2-2\sqrt{7})^2$	$(3+\sqrt{2})^2$	$(3+2\sqrt{2})^2$	$6\sqrt{2}\,(1+\sqrt{2})-1$
$32-8\sqrt{7}$	$(3+\sqrt{7})^2$	$14+6\sqrt{5}$	$3+4(1+\sqrt{3})$

Here you are finding a way across the board from left to right

Roots and Indices Maze

$2^6 x 2^3$	$3^2 x 2^3$	$(\sqrt{16})^2$	$(2^3)^3$	$8^3 \div 8$	$4^4 x 4^{-3}$	$(\sqrt[3]{8})^4$	$8 x 4^2$
$\sqrt{8}^3$	$(2^3)^2$	$8^7 x 8^{-5}$	4^3	$2^{-2} x 2^7$	64^0	$2^5 x 2^3$	$4^7 \div 2^3$
$(\sqrt{64})^3$	8^2	$2^2 x 2^3$	$2^3 x 2^3$	$(2^3)^3$	$(\sqrt[3]{8})^6$	$4^6 x 4^{-3}$	$2^2 x 4^2$
2^6	$(\sqrt{64})^2$	$4^6 x 4^{-2}$	$(\sqrt{16})^3$	$(2^2)^4$	$8^3 \div 2^3$	$2^{-3} x 2^7$	$(2^2)^4$
3^5	$2^6 x 2^1$	8^3	$4^5 \div 2^4$	$(-4)^{-3}$	$(2^2)^3$	$(\sqrt{8})^3$	$4^6 \div 2^6$
$4^3 x 4^{-3}$	$(2^5)^1$	$(\sqrt[3]{64})^2$	$2^3 x 8$	$2^{-1} x 2^7$	$(\frac{1}{4})^{-3}$	16^2	64

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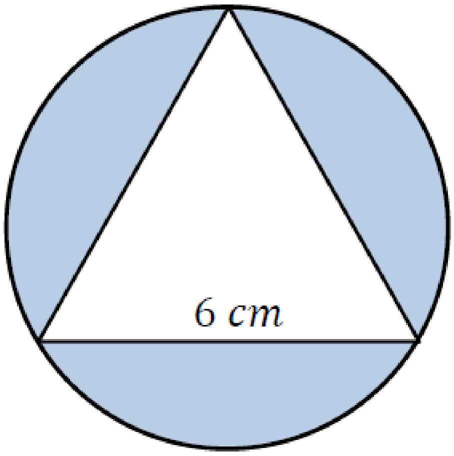
Subject: Maths @ CSS	**Assessment Point 1 -** Coursework
Title of the project:	Circle Area 1
Due date: First lesson back September 2018	
Learning skills and their place in the specification	**Research and analysis** Problem solving using new skills and those first introduced at GCSE is an important part of applying mathematics to everyday situations.
Specification link	http://filestore.aqa.org.uk/resources/mathematics/specifications/AQA-7357-SP-2017.PDF
Tasks set	Find the area of the circle not contained in an equilateral Triangle You may need to use Surds, Trigonometry and Pythagoras' Theorem or Construction techniques. You will need to make a number of copies of the problem to work on.
How this links to the exam specification	During the course, formulae that have been familiar at GCSE are developed to solve problems using new techniques and units of measure.
How to complete the task:	See attached information
Resources or links	Use Higher GCSE revision Guide. Mymaths, Mathswatch and the internet.
Link to Assessment Task 2 - Test	This will be a key topic during term 1 and 2.
Staff contact and email address:	Emma.lynch@chippingsodburyschool.com Christopher.Chapman@chippingsodburyschool.com
Number of learning hours it will take to complete	1-3 hrs Minimum 10 hours total for all tasks

You must show all your working.

Circle area 1

This diagram shows an equilateral triangle of side length 6 cm drawn inside a circle so that each corner touches the circumference of the circle.



What area of the circle is shaded?

If you change the size of the Equilateral triangle does the proportion of the circle shaded change?

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Subject:	Maths @ CSS	**Assessment Point 1 -** Coursework
Title of the project:	Quadratic Graphs	
Due date: First lesson back September 2018		
Learning skills and their place in the specification	**Research and analysis** This task enables testing of the basic understanding of how Quadratic graphs work and what the key aspects of the formulae are able to tell us.	
Specification link	http://filestore.aqa.org.uk/resources/mathematics/specifications/AQA-7357-SP-2017.PDF	
Tasks set	What do you know about Quadratic Graphs and how can you use that knowledge to solve 3 sets of problems?	
How this links to the exam specification	Throughout you are expected to be able to factorise quadratics and sketch quadratic graphs. The skills involved in factorising or completing the square or solving intersecting equations must become second nature.	
How to complete the task:	See attached information	
Resources or links	Use Higher GCSE revision Guide. Mymaths, Mathswatch and the internet.	
Link to Assessment Task 2 - Test	This will involve key topics during term 1 and 2 and 3.	
Staff contact and email address:	Emma.lynch@chippingsodburyschool.com Christopher.Chapman@chippingsodburyschool.com	
Number of learning hours it will take to complete	1-3 hrs Minimum 10 hours total for all tasks	

You must show all your working.

A sketch may help.

All, some or none?

For each question there are 5 related statements. In each case decide which of them are true.

1. The quadratic $y = x^2 - 2x - 3$:
   a. rearranges to $y = (x-1)^2 - 2$
   b. Has a y intercept at -3
   c. factorises to $y=(x-3)(x+1)$
   d. has an axis of symmetry at $x = 1$
   e. has a minimum value of -3

2. The quadratic $y = (x+1)^2 + 2$:
   a. rearranges to $y=(x+1)(x+2)$
   b. has a minimum value of 2
   c. always has positive values for y
   d. has an axis of symmetry
   e. doesn't cross the x axis

3. All quadratics:
   a. have an axis of symmetry
   b. cross the x axis
   c. can be arranged to a completed square format
   d. cross the y axis once
   e. have a minimum value

Challenge: For any statements that are false in question 3, give counter examples and explain when and why they are false.