



# Y7&8 INFORMATION EVENING

## MATHEMATICS

NOTRE DAME HIGH SCHOOL SHEFFIELD

## MATHS AT NOTRE DAME



- KEY MESSAGES FOR STUDENTS
- HABITS THAT LEAD TO SUCCESS
- PRACTICAL SUPPORT

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So what are these things?  
And what can I do to help?



## 1. YOU WILL IMPROVE IF YOU PRACTICE



Think about things that you can do that this baby cannot

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We asked students to think about this question in an assembly.  
The point was...maths is not something that you either have or you don't.  
You learn it with practice



## 2. BE OPEN TO AND ACT UPON ADVICE



What happens when you go to the doctor?

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The doctor needs some information; there will be questions, tests, scans before they can help

The maths teacher needs information, too.

We use techniques to gather this information, but it's so much easier if students are forthcoming

Particularly when they are unsure about a topic



### 3. WE NEED TO PRACTICE THINGS THAT YOU HAVE DONE IN PRIMARY



Which are the most important maths skills?

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We asked students to think of some maths topics.

The diagram shows GCSE maths skills, with the dots proportional to the number of topics they are prerequisite for.

Y7 can name all the big ones!

The message: we will be revisiting things that have been done in primary.

Some students think “I’ve done area before, so I don’t need to concentrate on this”

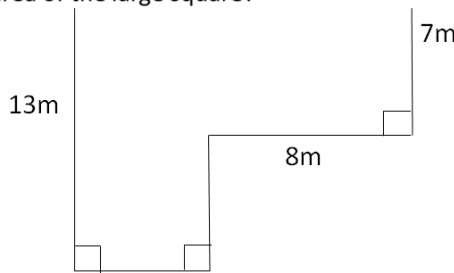
And then, before they know it, they are left behind.

They need share what they already know, and get ready for when we extend the ideas they started in primary

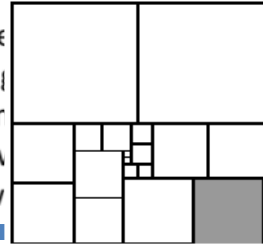
# EXAMPLE



[JMC 2008 Q25] A large square is divided into adjacent pairs of smaller squares with integer sides, as shown in the diagram (which is not drawn to scale). Each size of smaller square occurs only twice. The shaded square has sides of length 10. What is the area of the large square?



Bob's garden is the whole of the area around it, and he wants to fence it. What will it cost if the fence is £5.20 per meter?



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One example is 'area of a rectangle'

We know students do it in primary and yet we spend two weeks on it

But we won't spend two weeks on the first problem, we'll look at more complex questions

Answers are £3561.60 and 1296



#### 4. MATHS IS ABOUT BEING CERTAIN (NOT ANSWERS)



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If some of the blocks lower down are shaky, trying to learn new ideas can be difficult, and can risk upsetting what is already understood



#### 4. MATHS IS ABOUT BEING CERTAIN (NOT ANSWERS)



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The individual skills can be useful but probably in very specific situations or careers (science, engineering, etc)  
But the ability to make a case with certainty is vital in many more careers, and in managing our lives (in particular, financially)





## 5. YOU LIKE WHAT YOU'RE GOOD AT

### HOBBIES



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The usual thought is that you get interested first, and then you become successful  
But there's a growing consensus that it's the other way round. You experience some success, and that fuels your interest

We might see this in hobbies, a child experiences some early success, they feel good at it, and it becomes something they like doing. This then leads to more success.



1. YOU WILL IMPROVE IF YOU PRACTICE

2. BE OPEN TO AND ACT UPON ADVICE

3. WE NEED TO PRACTICE THINGS THAT YOU  
HAVE DONE IN PRIMARY

4. MATHS IS ABOUT BEING CERTAIN  
(NOT ANSWERS)

5. YOU LIKE WHAT YOU'RE GOOD AT

## MATHS AT NOTRE DAME



- KEY MESSAGES FOR STUDENTS
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## HABITS FOR LEARNING MATHS



- MATHS IS LEARNED THROUGH EXAMPLES. STUDENTS NEED TO BE THINKING ABOUT HOW THEY WOULD DEAL WITH EVERY EXAMPLE, NOT JUST WHEN THEY ARE ASKED
- IMITATE THE WORKING SHOWN BY THE TEACHER. SOME STUDENTS CAN DO EASY QUESTIONS WITHOUT WORKING, AND THEN GET STUCK ON MORE CHALLENGING QUESTIONS
- PRACTICE WRITING CLEAR SOLUTIONS. AS THE MATHS GETS HARDER, THOSE WHO RELY ON MENTAL METHODS START TO STRUGGLE.

## HABITS FOR LEARNING MATHS



- RESILIENCE IS SOMETHING WE HAVE TO LEARN, AND BUILD UP SLOWLY.
- WE MOSTLY MODEL THE THINKING THAT STUDENTS NEED TO USE.
- BUT SOMETIMES, WE NEED TO LET THEM THINK FOR A MINUTE OR TWO BEFORE GIVING GUIDANCE

Jon has 78p

Nat has £3.52

Nat gives Jon some money so that they both have the same amount.

How much does Nat give Jon?

## MATHS AT NOTRE DAME



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# TIMES TABLES



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## TESTS



- STUDENTS WILL DO A TEST EVERY HALF TERM.
- THEY WILL BE PROVIDED WITH A PRACTICE TEST TO HELP THEM PREPARE
- IT IS HELPFUL FOR THEM TO TRY THE QUESTIONS ON THEIR OWN BEFORE LOOKING AT THE ANSWER

# PRACTICING SKILLS



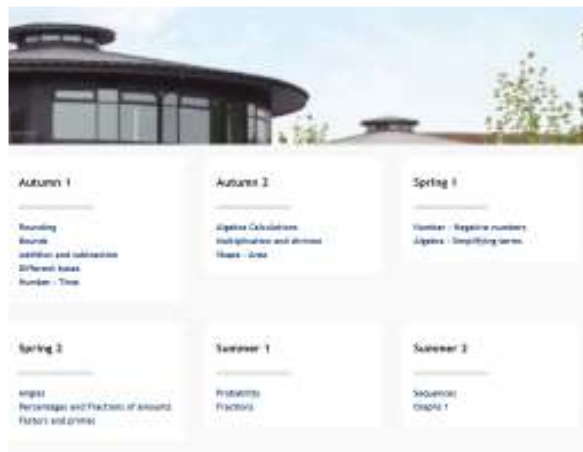
- STUDENTS FOLLOW A SCHEDULE AND THIS CAN BE USED TO CHOOSE WHAT TO PRACTICE

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn 1	Rounding (In tutor groups)	Place value <b>Bounds</b> Different bases		Written methods for addition and subtraction Family of four <b>Estimation</b>		Time	<b>Fractions:</b> on a number line	
Autumn 2	<b>Negatives:</b> on the number line	<b>Algebra:</b> Calculations		Written methods for multiplication and division <b>Missing digit problems</b> <b>Counting by multiplying</b>		Area		Rich tasks / Tests
Spring 1	<b>Negatives:</b> reordering and negative number counters		<b>Algebra:</b> Simplifying and expanding		<b>Equations:</b> Meaning of equations and verifying			
Spring 2	Percentages and Fractions of amounts		Angles		Factors & Primes <b>Number theory</b> <b>Cross numbers</b>		<b>Fractions:</b> Generate equivalent fractions	
Summer 1	Probability		Revision	Exams	<b>Fractions:</b> Add and subtract mixed fractions with the same denominator			
Summer 2	Sequences		<b>Negatives:</b> simplifying operations	<b>Equations:</b> Mental solutions	Enrichment days	Graphs		

# PRACTICING SKILLS



- THE SCHEDULE CAN BE FOUND ON [DRFROSTMATHS.COM](http://DRFROSTMATHS.COM)



# PRACTICING SKILLS



- FOR EACH TOPIC, THERE ARE VIDEOS, SKILLS PRACTICE AND EXAM QUESTIONS

Maths 1

**Rounding**  
4 skills

**Fractions**  
1 skill

**Addition and subtraction**  
3 skills

**Different bases**  
2 skills

**Number - Time**  
3 skills

216 Calculate the upper and lower bound of rounded values or identify an error interval.  
History 10:16

[Get a Task](#) [Generate Worksheet](#) [View a Go](#)

Skill	Video	Attachment
CE11a: Exam-Practice Calculate the upper and lower bound of rounded values or identify an error interval.	<a href="#">Browse</a>	1:4
CE11a: Calculate bounds of a number rounded to the nearest 1, 10, 100, 1000.	<a href="#">Example</a>	1
CE11a: Calculate bounds of a number rounded to a given number of decimal places.	<a href="#">Example</a>	2
CE11a: Calculate bounds of a number rounded to a given number of significant figures.	<a href="#">Example</a>	3
CE11a: Calculate bounds of a number truncated to a given number of decimal places.	<a href="#">Example</a>	4
CE11a: Find the error interval of a rounded number.	<a href="#">Example</a>	5

## FAQ - SETTING



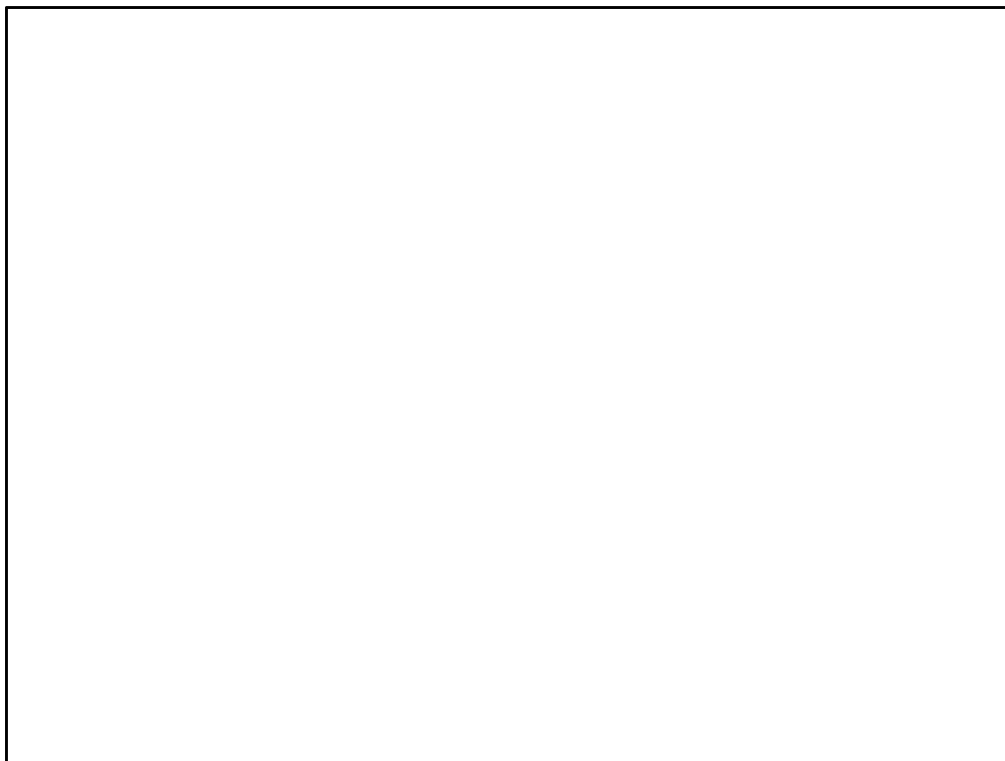
- WE TRY TO GROUP STUDENTS SO THAT THEY ARE WITH OTHERS WHO NEED TO WORK ON SIMILAR NUMBER SKILLS
- SETTING IS NOT ABOUT RANKING STUDENTS
- THE SET DOES NOT DETERMINE THE GRADE. IT'S HARD WORK THAT COUNTS.

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This means that students get more attention from the teachers. The continued focus on number work can be targeted very precisely to help students improve

Students mathematical understanding is complicated. Levels or ranking would have you believe that a student who got 5c is better than one who got 4a in every topic. This is not true. Our job is see what they can do and then push them on. For everyone. AND this also means that it is more important to have a teacher that knows you well rather than moving up sets at the first opportunity.

Examples at GCSE. Students in set 2 got Bs, and students in set 6 got As



# QUESTIONS

