

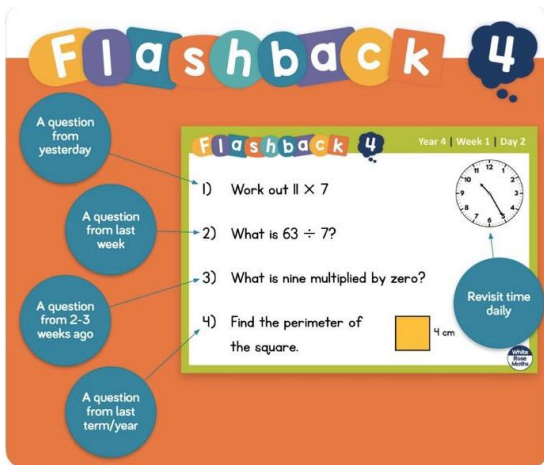
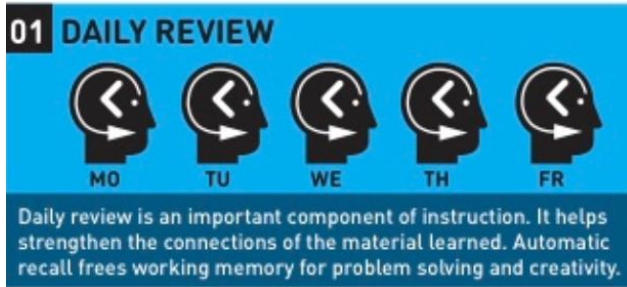


## Mathematics at High Hazels

We follow a mastery approach and use the White Rose Schemes of Learning for long- and medium-term planning. Our teaching is guided by Rosenshine’s principles to ensure effective instruction and a high success rate for children.

### Our Weekly Maths Teaching

| Monday   | Tuesday  | Wednesday  | Thursday   | Friday                                     |
|--|--|--|--|--|
| Independent Reading                                    | Independent Reading  | Independent Reading  | Independent Reading  | PPA  |
| Reading  | Reading  | Reading  | Reading  |  |
| Writing  | Writing  | Writing  | Writing  |  |
| Break  | Break  | Break  | Break  |  |
| <b>Daily Review</b><br><i>Flashback 4</i>              | <b>Daily Review</b><br><i>Flashback 4</i>                                    | <b>Daily Review</b><br><i>Flashback 4</i>                                    | <b>Daily Review</b><br><i>Flashback 4</i>                                    |  |
| <b>Maths Lesson</b><br><i>New learning</i>             | <b>Maths Lesson</b><br><i>New learning</i>                                   | <b>Maths Lesson</b><br><i>New learning</i>                                   | <b>Maths Lesson</b><br><i>New learning</i>                                   |  |
| Lunch  | Lunch  | Lunch  | Lunch  | Lunch                                      |
| <b>Weekly Review</b><br><i>'Beat That!' Challenges</i> | <b>Weekly Review</b><br><i>Recall Key Facts</i><br><i>Practise Key Skill</i> | <b>Weekly Review</b><br><i>Recall Key Facts</i><br><i>Practise Key Skill</i> | <b>Weekly Review</b><br><i>Recall Key Facts</i><br><i>Practise Key Skill</i> | Reading Fluency                            |
|  |  |  |  | <b>Daily Review</b><br><i>Flashback 4</i>  |
|  |  |  |  | <b>Maths Lesson</b><br><i>New Learning</i> |



### Daily Review

- At the start of each lesson, children review prior learning by completing 'Flashback 4'.
- Teachers have 'Flashback 4' ready as a 'Do Now' activity.
- Children have 5 minutes to complete it independently – they may not finish.
- Y1, 2, 3 complete this on white boards, Y4, 5, 6 complete it in books.
- Teachers use 'Thinking out loud' to go through the answers.
- Children write notes and correct their answers (Y4, 5, 6).
- Teachers make notes of topics that need reviewing further in Weekly Review sessions.

### Maths Lessons: New Learning

Most of the White Rose small steps are taught over two days to ensure children are secure and have had plenty of opportunity to practise new learning.

*Missed learning from last year, as well as key objectives that need to be reviewed and consolidated, have been incorporated into the new White Rose Schemes of Learning. They appear with a pink 'R' next to the small step.*

#### **Day 1: Guided Practice**

Focus on understanding and procedural fluency.

#### **Day 2: Fluency and Problem Solving**

Focus on application and deepening understanding.

## 02 NEW MATERIAL IN SMALL STEPS



Our working memory is small, only handling a few bits of information at once. Avoid its overload — present new material in small steps and proceed only when first steps are mastered.

## 03 ASK QUESTIONS



The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.

## 04 PROVIDE MODELS



Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud help clarify the specific steps involved.

## 08 SCAFFOLDS FOR DIFFICULT TASKS



Scaffolds are temporary supports to assist learning. They can include modelling, teacher thinking aloud, cue cards and checklists. Scaffolds are part of cognitive apprenticeship.

### Day 1: Guided Practice

- A CPA approach is used to develop children's understanding of mathematical concepts.
- New learning is introduced in small steps.
- After each small step, children have the opportunity to practise.
- Teachers use this time to assess and support those that need it, prioritising key groups.

#### Teachers plan to include...

- different representations and models to develop a robust understanding of a concept,
- sentence stems to scaffold and develop reasoning,
- a sequence of questions that encourage children to notice patterns and relationships (intelligent practice),
- challenges to stretch early graspers.

### Assessment: One Page Marking

After day 1, teachers use one page marking to assess children and group them ready for day 2.

Teachers consider four things:

1. Who needs verbal feedback?
2. Who needs additional teaching?
3. Are there any misconceptions?
4. What needs to be reviewed?

Children are not assessed against the LO on day 1 as they have not yet worked completely independently.

## 05 GUIDE STUDENT PRACTICE



Students need additional time to rephrase, elaborate and summarise new material in order to store it in their long-term memory. More successful teachers built in more time for this.







## 06 CHECK STUDENT UNDERSTANDING



Less successful teachers merely ask "Are there any questions?" No questions are taken to mean no problems. False. By contrast, more successful teachers check on all students.

# Challenge Sheet



|                               |   |
|-------------------------------|---|
| Draw it                       |    |
| Show it                       |    |
| What mistakes could you make? |    |
| What do you notice?           |   |
| Answer it a different way.    |  |
| Write your own problem.       |  |

## Challenge Yourself

1. Prove it.

Do

Show

Explain

2. Show it practically.

You could use counters, Dienes, cubes, Numicon, a number line etc.

3. Represent it another way.

You could use words, digits, partitioning, a number line, a bar model, a diagram etc.

4. What mistakes might you make?

Which bit might be confusing? Why?

What might you forget to do?

5. What do you notice?

Can you spot a pattern?

6. Can you work out the same answer using a different method?


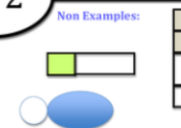
7. Which is the best method? Why?

8. Write a similar question.

9. Write a number story.

10. Write a word problem.

11. Complete a Frayer Model:

|  |  |
|--|--|
| <p><b>Definition:</b><br/>A fraction is usually part of a whole number. <math>\frac{1}{2}</math> is another way of saying 1 out of 2 equal parts. If we had 1 item and divided it equally into 2, it would leave us with <math>\frac{1}{2}</math>.</p> | <p><b>Characteristics:</b><br/>- Equal parts of a whole or a set shared into 2 equal pieces<br/>- A numerator, which is half the denominator</p> |
| <p><b>Examples:</b></p>   | <p><b>Non Examples:</b></p>                                 |

These challenge sheets can be used to stretch early graspers in KS1 and KS2.

Teachers may choose a challenge to deepen a question, or children may select a challenge independently.

## Day 2: Fluency and Problem Solving

Teachers review yesterday's learning and addresses any misconceptions.

- Children who are **secure** will complete 'Fluency' and 'Problem Solving' questions independently.
- They will apply skills learnt on day 1 to varied questions.
- Children use the models taught on day 1 (sentence stems and representations) to reason and problem solve.
  
- Children who are **not yet secure** will receive additional teaching to address misconceptions or areas of weakness.
- They will have further practice.
- Children will then complete 'Fluency' and 'Problem Solving' questions independently or with support.

By the end of day 2, most children will have had the opportunity to work independently. Most children will have applied their knowledge to a range of questions and will have accessed reasoning and problem-solving questions.

## 07 OBTAIN HIGH SUCCESS RATE



A success rate of around 80% has been found to be optimal, showing students are learning and also being challenged. Better teachers taught in small steps followed by practice.

## Assessment: Deep Marking

At the end of day 2, children's books are fully marked in line with the marking policy.

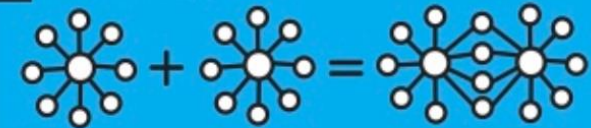
As much of this as possible is done within the lesson.

## 03 ASK QUESTIONS



The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.

## 04 PROVIDE MODELS



Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud help clarify the specific steps involved.

## 06 CHECK STUDENT UNDERSTANDING



Less successful teachers merely ask "Are there any questions?" No questions are taken to mean no problems. False. By contrast, more successful teachers check on all students.

## 09 INDEPENDENT PRACTICE



Independent practice produces 'overlearning' — a necessary process for new material to be recalled automatically. This ensures no overloading of students' working memory.

**10 WEEKLY & MONTHLY REVIEW**



The effort involved in recalling recently-learned material embeds it in long-term memory. And the more this happens, the easier it is to connect new material to such prior knowledge.

|         |                                    |
|---------|------------------------------------|
| 5 mins  | <b>Recall Key Facts</b>            |
| 5 mins  | <b>Teacher Models Key Skill</b>    |
| 10 mins | <b>Children Practise Key Skill</b> |

### Home Learning

Children are expected to practise their set times tables on TTRS at least once a week.

Additional activities are made available termly on the school website

### Weekly Review

#### **Beat That!**

- Children start the week by completing two timed assessments appropriate to their level.
- They recall number facts and basic skills.
- Teachers go through the questions and children mark their answers if they are able.
- Children keep tests in a folder to show progress.
- Teachers pick an area/ some areas to focus on throughout the week's review sessions.

#### **Gap Filling**

- During registration, children practise recalling key facts (times tables, addition facts, doubling etc.) as a Do Now activity.
- Teachers review a key skill based on assessments (Beat That!, Flashback 4, end of unit tests etc.).
- Teachers model using an I, We, You format.
- Children are given the opportunity to practise either on white boards, morning learning books or worksheets (which can be kept in their Beat That! Folder).

### Assessments

- Children complete White Rose End of Unit tests after each block.
- Children complete PUMA or SATs tests termly.
- Teachers update the Basic Skills Tracker on an ongoing basis.

## Differentiation

At High Hazels we follow a mastery approach. This means we start from a low access point when teaching new content and then teach for depth. As a result, the vast majority of children should be able to access the core learning. For a small number of pupils with SEND needs or language difficulties, this may not be possible. Teachers plan alternative resources for these children.

### **Children who are NTE and working below the age expected level.**

#### **Daily Review**

Children should be able to access the whole class learning.

#### **Maths Lesson day 1**

Children should be able to access the whole class learning.

Children may need more support with Guided Practice.

#### **Maths Lesson day 2**

Children may need additional support and practice.

Due to their language difficulties, children may need day 2 questions to be simplified or scaffolded so they can access them independently.

#### **Weekly Review**

#### **Beat That!**

Children complete Beat That! challenges appropriate to their level.

#### **Gap Filling**

Children should be able to access most of the whole class learning.

Children may need more accessible questions to practise with.

### **Children with SEND working significantly below the age expected level.**

#### **Daily Review**

Children complete a 'number of the day' starter that reviews place value and number skills appropriate for their level.

#### **Maths Lesson day 1**

Children work towards an appropriate LO based on bsquared.

Children are only introduced to one small step per lesson.

Within a lesson, children follow a CPA approach.

Children have lots of opportunities to practise.

Children may apply their learning to different questions and complete 'Problem Solving' questions in a lesson.

Children should always have access to concrete resources.

#### **Maths Lesson day 2**

Day 2 follows the same format as day 1.

#### **Weekly Review**

#### **Beat That!**

Children complete Beat That! challenges appropriate to their level.

#### **Gap Filling**

Teachers model a different skill based on their assessments.

# 'Number of the Day' Examples

Today's number is...

**EVEN or ODD**

Place Value

|          |      |      |
|----------|------|------|
| Hundreds | Tens | Ones |
|          |      |      |

More and Less

|             |               |             |
|-------------|---------------|-------------|
|             | 10 less (-10) |             |
| 1 less (-1) |               | 1 more (+1) |
|             | 10 more (+10) |             |

Word Form

Expanded Form

+  +  =  Half of  is

Show with Place Value Blocks

Use the digits to make the smallest number \_\_\_\_\_

Use the digits to make the largest number \_\_\_\_\_

Name: \_\_\_\_\_

## Number of the Day

write the number word

one less      one more      write the next three numbers

draw it

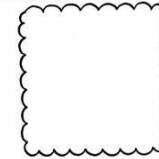
number bond

tally marks

show on ten frames

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## Number of the day



Find and color the number on the 100 chart:

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20  |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30  |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40  |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50  |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60  |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70  |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80  |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 89 | 89 | 90  |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

Solve it:

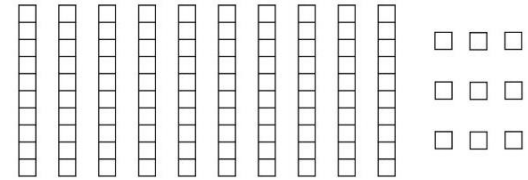
1 more

1 less

10 more

10 less

Color to show the number:



Write the number in words.