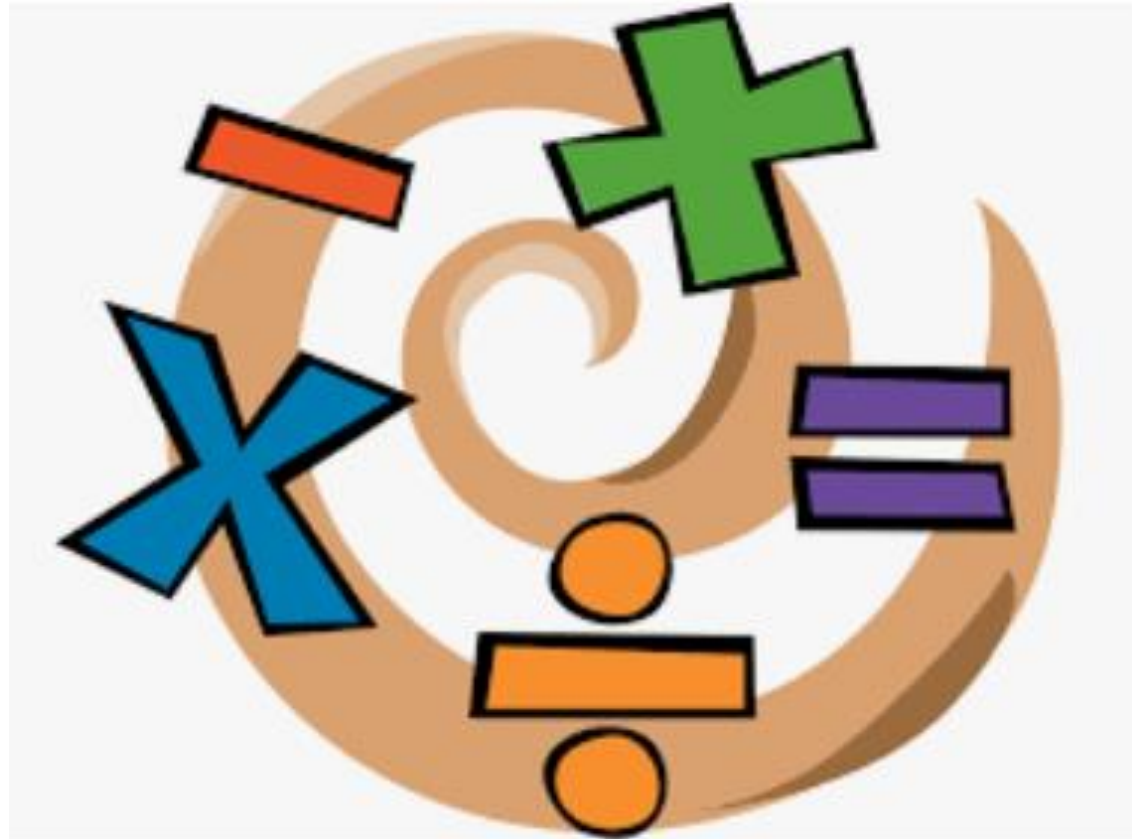
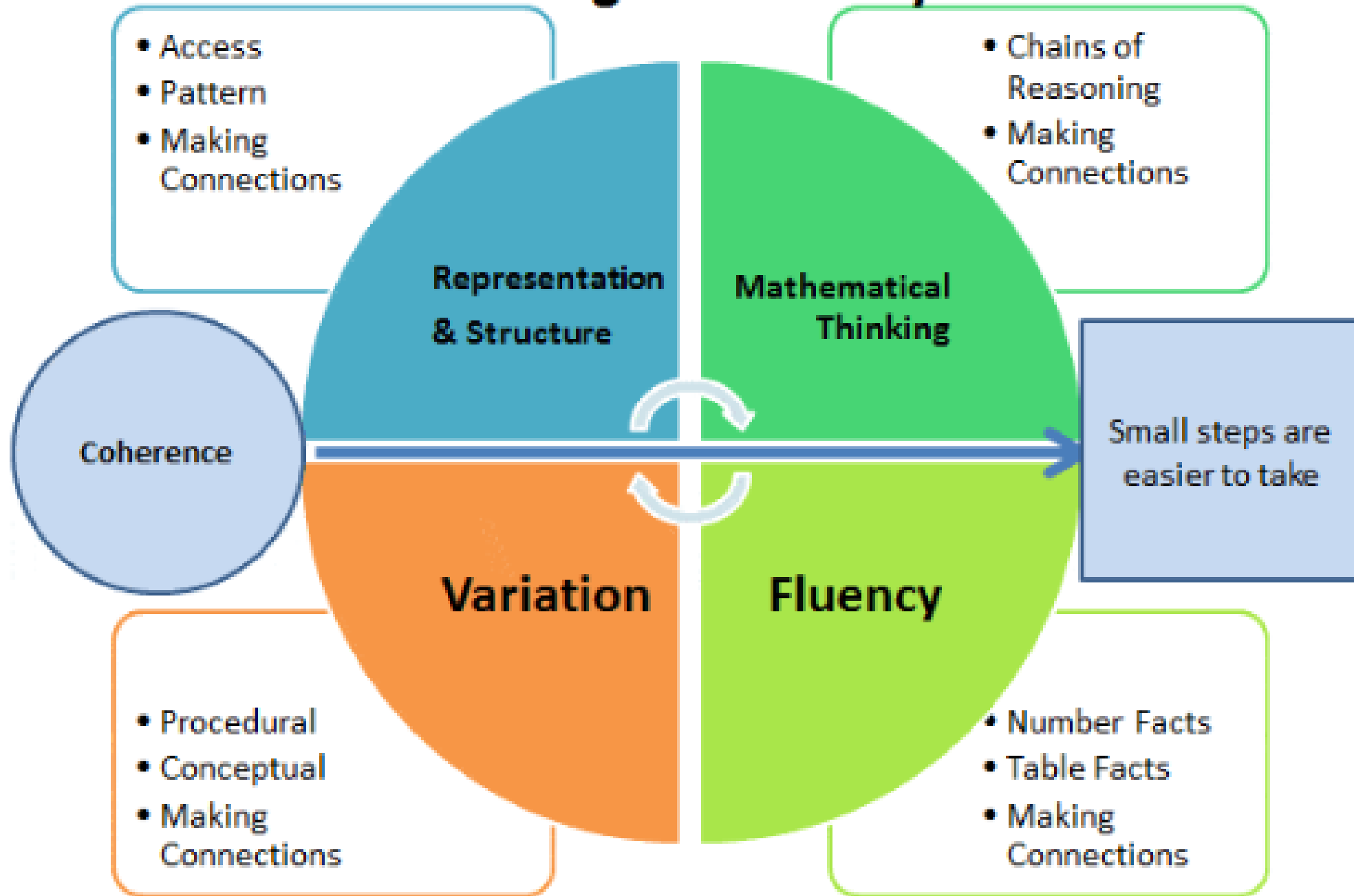


# Maths Fluency Workshop



# Teaching for Mastery



# What is Mastery?

- **Deep and sustainable learning in small steps.**
- **The ability to build on something that has already been learnt.**
- **The ability to reason about a concept and make connections.**
- **To have conceptual and procedural fluency.**

# Fluency

The National Curriculum states that pupils should become fluent in the fundamentals of mathematics through varied and frequent practice.

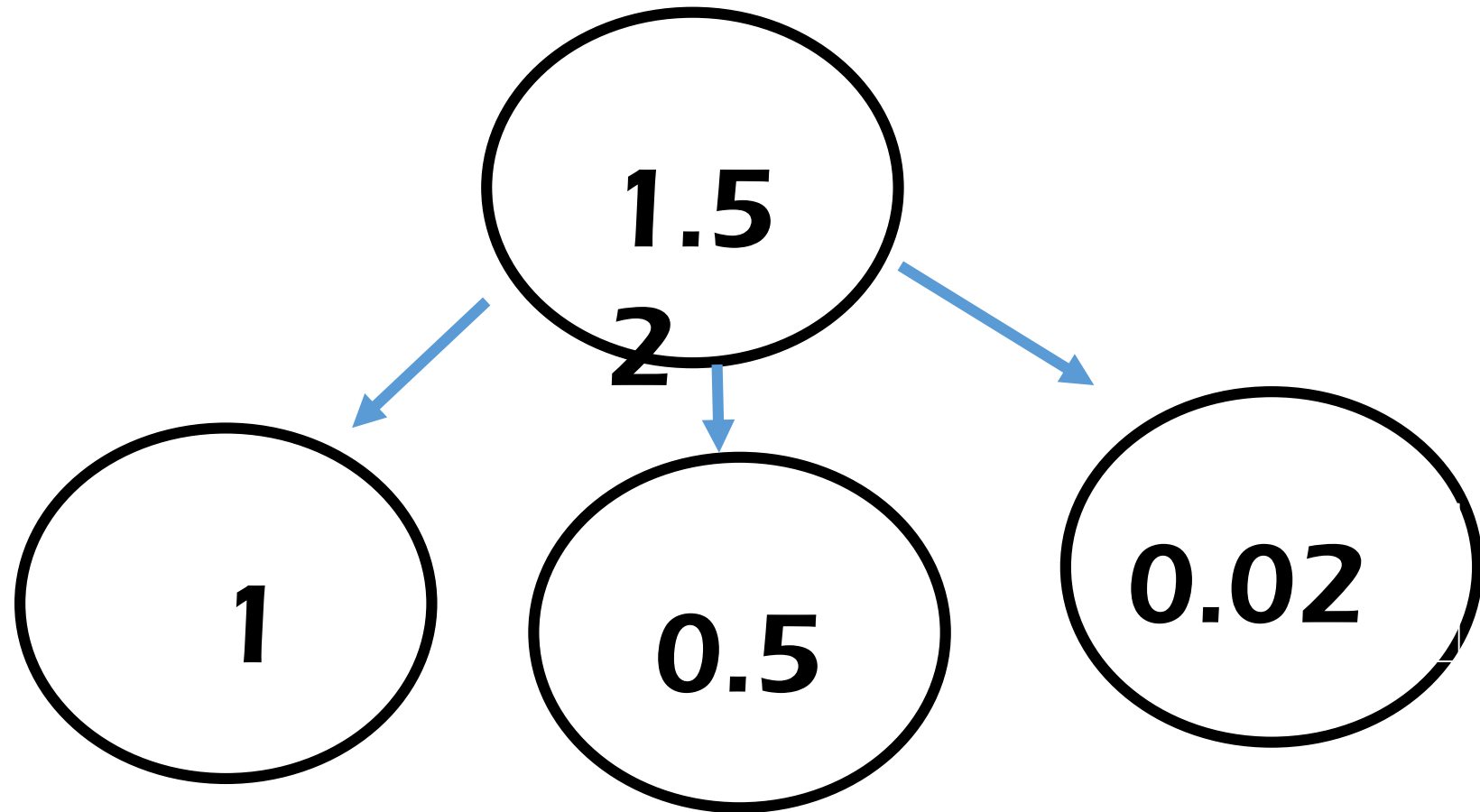
Fluency gives pupils the ability to:

- ❖ Develop number sense and choose the most appropriate method for the task
- ❖ Be able to apply a skill to multiple contexts
- ❖ Recognise relationships and make connections
- ❖ It involves quick recall of facts and procedures
- ❖ It gives flexibility and fluidity to move between different contexts of mathematics.

**Fluency = how fast a person can retrieve correct maths facts to working memory from storage memory.**

# Year 5 / 6 examples

- **Write 283 in Roman Numerals (Number and Place Value –Year 5)**
- **$740 + ? = 1039$  (Addition and Subtraction – Year 5)**
- **Find 5 equivalent fractions of  $\frac{3}{4}$  (Fractions – Year 5)**
- **$200 \times ? = 750 + ?$  (Multiplication and Division – Year 6)**
- **$\frac{4}{7} \div 5$  (Fractions – Year 6)**
- **75% of £1340 (Percentages – Year 6)**



# 972 + 100 =

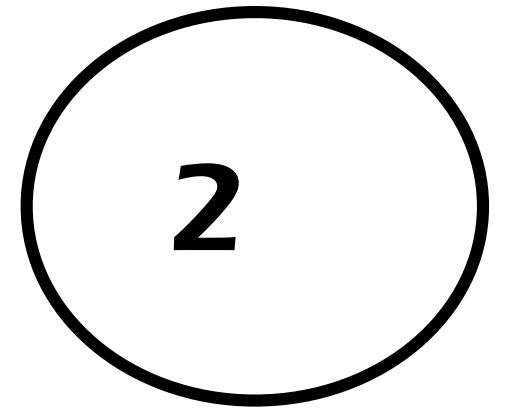
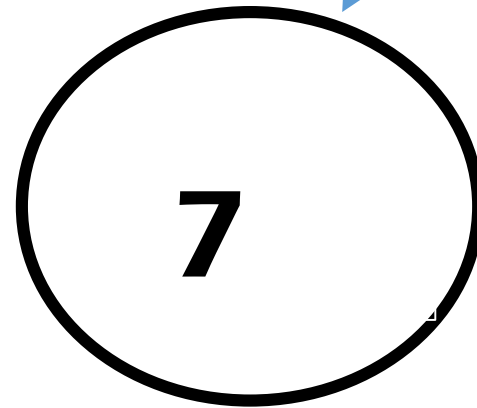
Thousands	Hundreds	Tens	Ones	.	Tenths
					

**When adding 100 what should I do?**

**Can you think of any methods which are not efficient?**

<https://mathsbot.com/manipulatives/placeValueCounters>

**472-9=**





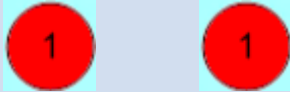
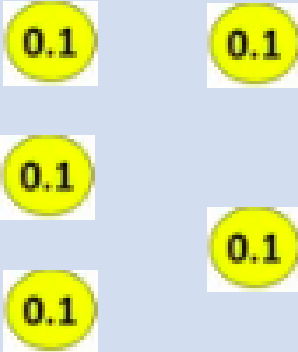
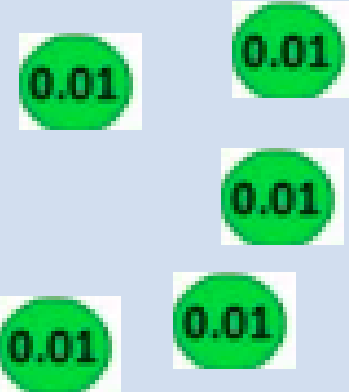
**50,000-500=**

---

**50,000**

**Why is using a number line more efficient than the column method?**

# 2.5 + 0.05 =

hundreds	tens	One	.	tenths	hundredths
			.		

**When adding 100 what should I do?**

**What methods are not efficient?**

<https://mathsbot.com/manipulatives/placeValueCounters>

<https://www.topmarks.co.uk/place-value/place-value-charts>

$$15.4 - 8.88 =$$

**What misconceptions could people have with this question?**

**How could you solve this calculation?**

$$48 \div 6 =$$

**What does this mean?**

**What can you use to help you work out the answer?**

# 24x3

**What does this mean?**

**What can you use to help you work out the answer?**

# **24x3**

**20x3=**

**4x3=**

$$630 \div 9 =$$

**What is the question asking?**

**What facts can you use to help?**

$$630 \div 9 =$$

$$63 \div 9 =$$

$$\underline{\quad} \times 10 =$$

Why do I have to multiply the answer by 10?



$$6 \times 10 = 60$$

**What does this mean?**

**When you multiply by 10, what happens to the number?**

$$6 \times 100 = 600$$

**What does this mean?**

**When you multiply by 100, what happens to the number?**

$$70 \div 10 = 7$$

**What does this mean?**

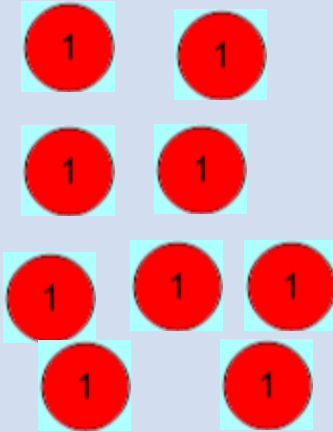
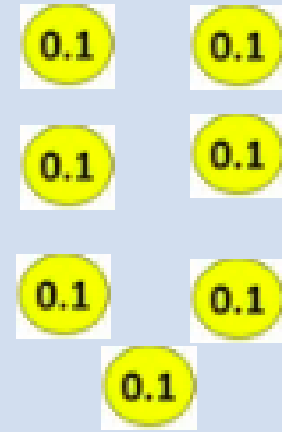
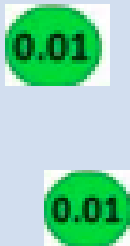
**When you divide by 10, what happens to the number?**

$$700 \div 100 = 7$$

**What does this mean?**

**When you divide by 100, what happens to the number?**

# 9.72 x 100 =

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
						

How could you work out the answer?

Can you think of any methods which are not efficient?

<https://mathsbot.com/manipulatives/placeValueCounters>



# Percentages

What is 100% equal to?

Bar Models can help with this!

What is 50% also equal to?

What is 25% also equal to?

What is 75% equal to?

What is 10% equal to?



# Percentages

**38% of 1500**

Bar Models can help with this!

**95% of 240**



**What is the most efficient way to work out the calculations?**

**What knowledge do you need to work out percentage question?**

## **Web sites to use for practising fluency and other resources...**

- **Oxford Owl Maths**
- **Top Marks times tables**
- **Times Table Rock Stars**
- **Maths is fun**
- **Woodlands resources**
- **Free numicon resources (good for simplifying and the concrete approach)**
- **Nrich website**

## Other ideas

- **Follow a recipe: work together to find out the quantities needed, ask your child to weigh the ingredients, discuss how you'd halve or double the recipe and discuss the ratio of ingredients.**
- **Talk about the weather forecast: is today's temperature higher or lower than yesterday's? What do the numbers mean?**
- **Going shopping: talk about the cost of items and how the cost changes if you buy two items instead of one. Let your child count out the coins when paying and discuss the change you get back. Use coins to explore addition, subtraction, multiplication and division.**
- **Planning an outing: discuss how long it takes to get to the park, and so work out what time you need to leave the house. Encourage your child to work out the best solution based on the time and distances. Discuss what shapes you see when you get there.**

- **Always speak positively about Maths even if you have had a negative experience.**
- **Get excited and your child will get excited too!**
- **We are always here to help 😊**