



# The Retrieval Practice Guide



February 2020  
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**What is retrieval practice?**

**What are the benefits of retrieval practice?**

**Successful implementation of retrieval practice**

**Practical retrieval practice strategies for your classroom**



### **What is retrieval practice?**

- Retrieval practice is any strategy that involves pupils retrieving material that they have previously learned from their long-term memory.
- Retrieval practice is a learning strategy, not an assessment tool; it is used to cement learning, strengthen memory and improve long-term retention, not to assess learning.

### **What are the benefits of retrieval practice?**

Retrieval practice can be said to have the following benefits:

1. Strengthens memory and so forgetting is less likely to occur in the long-term. Retrieval practice has been identified as being the most effective strategy for long-term memory in many studies and papers.
2. Identifies gaps in pupils' learning as it forces them to examine their learning. This prevents overconfidence of learning, improves metacognition and can be used to guide independent study.
3. Improves understanding of material.
4. Improves transfer of knowledge to new concepts.
5. Can also be used to guide future instruction.
6. Reduces test anxiety as pupils feel more confident in their knowledge and also because it reduces the need for 'cramming'.

### **Successful implementation of retrieval practice:**

- Ensure that retrieval practice is completed without access to textbooks or notes. This is crucial to ensure pupils are retrieving the information from their long term memories, and not using their short-term memories.
- Ensure that pupils initially complete retrieval practice independently. This means that all pupils do the cognitive work.
- Retrieval practice should be used in a spaced manner to recap content from last month and all the way back to the start of the course rather than just the last lesson. This takes account of the spacing effect which shows that long-term retention will be improved if practice is also spaced over time.
- Therefore, retrieval practice can be used as a discrete review, about a separate topic from that of the main content of the lesson.
- Each topic should also be recovered through retrieval practice multiple times. Research has demonstrated that pupils need to retrieve information at least four times for it to be remembered in the long-term.
- Retrieval practice should be low stakes – results should not be monitored/recorded. This is because retrieval practice is a learning not assessment strategy. Research has shown that low stakes retrieval practice is more effective. Therefore, it is also important not to increase the stakes with competitive games.
- Feedback has to be given on the retrieval practice to improve memory of the ‘correct’ answers. This can be done through displaying the correct answer or through a whole-class Q&A session. Research has shown that this is most beneficial if combined with elaboration—explanations of the correct answers.
- Pupils should self-mark their own retrieval practice as this ensures that they are aware of what they do know and do not know, and what they got right and wrong. As Dylan William states “the best person to mark a test is the person who just took it”.
- We must teach the use of retrieval practice, including an explanation of why it is effective to pupils so that they are able to use it in independent study.
- Use a mix of tasks. This prevents boredom and strengthens memory as it is explored in different ways.
- Use scaffolding for weaker/younger/more novice learners. This ensures pupils’ retrieval practice is successful and so they are not demotivated.
- Retrieval practice should be embedded in lessons throughout the course. Revision should not take place at the end of the teaching of the course.
- Retrieval practice should include facts, complex understanding and high-order skills.
- It should be used for all year groups, subjects and ability types.
- Retrieval practice should be used both in lessons and as part of homework. When used as homework it should be spaced – not on the content of the current lesson.
- Include higher-order tasks/questions which require pupils to explain/analyse and evaluate—see last page for further examples.

### Strategy 1—Retrieval practice grids:

- The grid is filled with questions on topics covered previously.
- Pupils get different amounts of points for answering different questions with more points being awarded for answering questions on topics that were taught a longer time ago.
- It is important to note that this does not make the retrieval practice a competition because as previously discussed, this would increase the 'stakes'. It is instead used to ensure that all pupils answer enough questions/ access a good level of challenge. For example, you can tell pupils that they all have to get a minimum of 10 points and they can choose the make up of this. This keeps stakes low while rewarding pupils for answering questions on 'older' topics.

What is the name of the memory type that holds frequently used data and instructions?	What is a brute force attack?	How many bits of storage is used in each character in an ASCII character set?	Convert the hexadecimal number D6 to binary.
Name 2 different utility software types.	Convert the binary number 01110101 to denary.	Which component of the CPU is in charge of handling calculations and logic?	List 3 different network protocols.
What is an overflow error?	What is the difference between a hub and a switch?	What is the name of psychologically tricking someone to give up personal information?	Is ROM volatile or non-volatile?

1 Point (Last week)

2 Points (Last term)

3 Points (A year ago)

### Strategy 2—Thinking and linking grids:

- Pupils roll two dice to identify words/terms.
- They then do this again to identify a second word and have to then write down how the two words/terms link together.

	1	2	3	4	5	6
1	Scrooge	Light	Tiny Tim	Marley's chains	Memory	Forgiveness
2	Family	The Ghost of Christmas Yet to Come	Scrooge as a school boy	Martha Cratchit	Fan	Peter Cratchit
3	Gratitude	Christmas	Reform	Poverty	Cold	The Ghost of Christmas Past
4	Marley's ghost	The charity collectors	Bob Cratchit	Ignorance and Want	Mrs Cratchit	Generosity
5	Hope	The Ghost of Christmas Present	Compassion	The workhouse	Redemption	Fezziwig
6	Repentance	Isolation	Belle	Responsibility	Fred	Guilt

### Strategy 3—Mind maps:

- Pupils draw a mind map to show everything that they remember about a topic.
- An outline can be given to provide scaffolding.

### Strategy 4—Know it all sheets:

- Pupils are given a sheet to complete about a topic from memory.
- Again, sub-headings/boxes can be provided to provide structure.

## Strategy 5—Quizzes:

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- This can include 10 questions for pupils to answer on one or a mix of topics.
- A range of question types can be used including short-answer, exam style questions, multiple choice questions and basic tasks.
- Quiz questions can also be used for homework.

<b>R+Juliet</b>	1. What is described as "such sweet sorrow"? (1)
<b>ACCarol</b>	2. What does Scrooge want to do to the "surplus population"? (1)
<b>AICalls</b>	3. What imperative verbs does Mrs B use to the inspector? (1)
<b>Poetry</b>	4. What do the sentries do in 'Exposure'? (1)
<b>Lang P1</b>	5. P1Q5: Give another verb to describe someone walking quickly (1)
<b>R+Juliet</b>	6. What describes how the love has come from Juliet's "only hate"? (1)
<b>ACCarol</b>	7. How did Marley create the "chain" in life? (1)
<b>AICalls</b>	8. What does Mrs Birling not believe Eva would do with money? (1)
<b>Poetry</b>	9. How is the speaker in COMHistory making his identity? (1)
<b>Lang P2</b>	10. P2Q3: Identify the verb: "I cautiously entered the house" (1)

## Strategy 6—Find and fix errors:

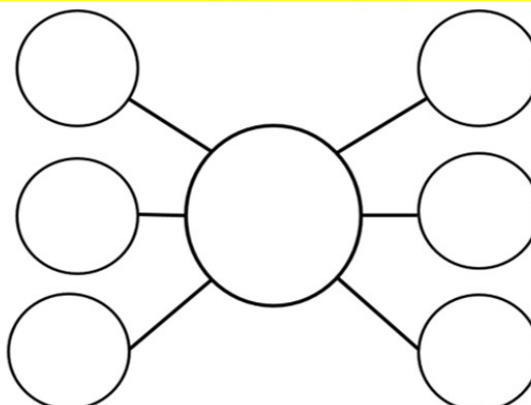
- Here, instead of answering questions, pupils find the errors in the statements and explain why they are incorrect.

Find and Fix Historical errors: Power and the People Individuals			
Can you find the 21 mistakes?			
Olaudah Equiano was given his freedom	Lord Robert Slice repealed the Corn Laws.	King John held the youngest son of some barons as hostage	Annie Besant was an author who supported the Match Girls strike
Simon De Montfort invited two peasants from every county to Parliament	Lord Shaftesbury focused on improving conditions for Street painters	Emmeline Pankhurst was never arrested	William Wilberforce was Prime Minister
Wat Tyler was a priest	Feargus O'Conner was editor of the Southern Moon	Robert Aske made sure that all of the protestors took the travellers promise to show they were not rebels.	Arthur Scargill was leader of the dock workers union in the 1980s
Oliver Cromwell led the Royalist faction in the civil war	Enoch Powell's famous "rivers of hatred" speech was pro-immigration	Henry VIII changed religion because of his theological differences with the Pope	Titus Pepper built a whole town, Peppertown, for his workers.

## Strategy 7—Graphic organisers:

- Graphic organisers can be used to allow pupils to represent their knowledge in an image.
- There are many examples including double bubble maps, flow charts, fishbone organisers, cause and effect tables.

Pour commencer: Bubble map as much vocab as possible on the topic of **Technology in Everyday Life**

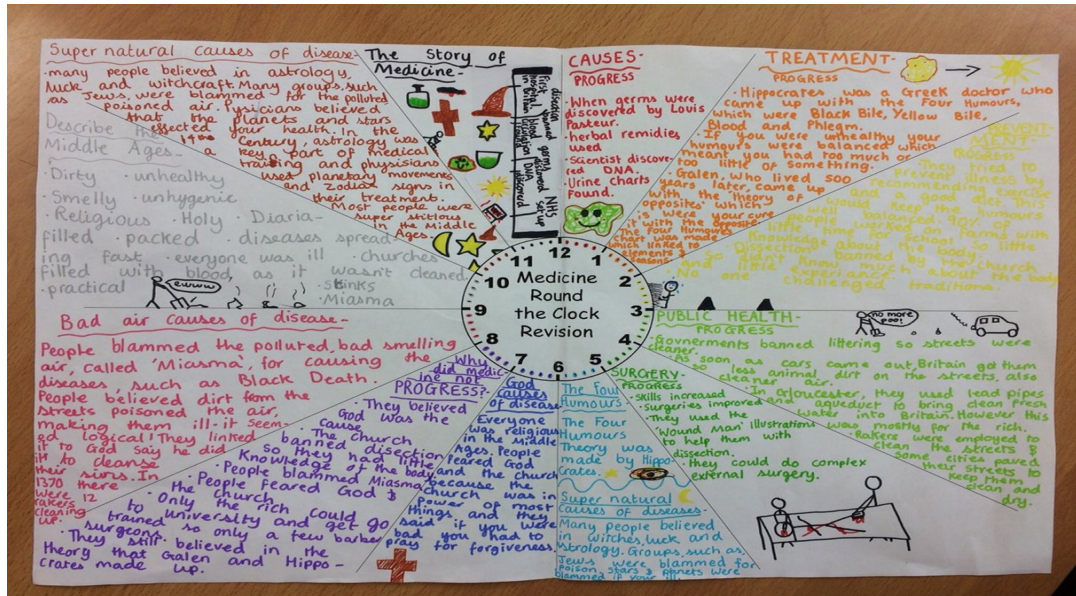


**CHALLENGE**

Choose only one word category: verbs/nouns/adjectives

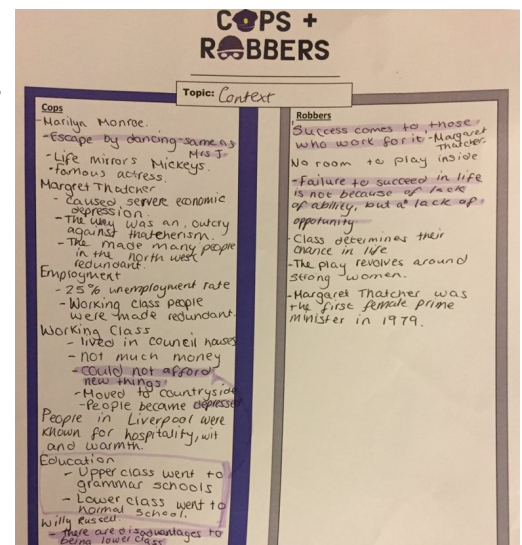
## Strategy 8—Retrieval clocks:

- Pupils are given a sheet split into 12 sections. Each section is about one aspect of a topic. Pupils have 5 minutes to recall everything they know about that aspect of the topic. They then have to move on to another aspect/section of the sheet.



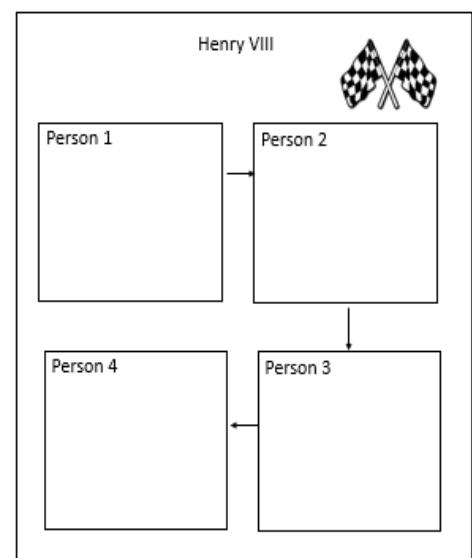
## Strategy 9—Cops and Robbers:

- Pupils recall everything they know about a topic in the 'cops' column. They then move around the room reading the work of other pupils and writing anything that they did not manage to recall in the robber column.



## Strategy 10—Retrieval relay race:


- Retrieval race is another example of more practical and collaborative retrieval practice.
- Pupils are given a sheet with 4 boxes. They complete the first box by writing down what they know about the topic. The next 3 boxes have to be completed by other students with what they know about the same topic but no information can be repeated. Important to use time limit.



## Strategy 11—Five-a-day starters:

- Pupils are given five tasks to complete at the start of the lesson.
- A range of question types/tasks can be used including questions, key words to define, words to use in a paragraph to summarise a topic, images to describe, events to put into chronological order, etc.
- This can be about one topic or a mix of topics.

### Five-a-day Starter

Date:	
In which chapter is this even described?	
	
Extension: How is Hyde presented? Can you remember a quotation?	
'The evil side of my nature...was less robust and less developed than the good. In the course of my life, which had been, after all, nine-tenths a life of effort, virtue and control, it had been much less exercised and much less exhausted. And hence, as I think, it came about that Edward Hyde was so much smaller, slighter and younger than Henry Jekyll.'	
Why does Jekyll think Hyde was so small?	
'Our brains ache, in the merciless iced winds that knife us.'	
Which poem is this from? What technique is underlined?	
Extension: What is the effect on the reader?	
What is the name of Jekyll's Butler?	
What other name does Eva Smith use in 'An Inspector Calls'?	

## Strategy 12—Quiz, quiz, trade:

- Pupils have a flash card with a question(s) on the front and answer(s) on the back.
- They quiz each other on their questions and then trade cards, going to work with another pupil.

## Strategy 13—Walkabout Bingo:

- Pupils have a sheet with a list of questions.
- They have to walk around the room getting answers from other pupils.
- They can only ask each pupil one question and have to record the name of the person who answered it.
- The first person to have all questions answered wins the bingo.
- The class then goes through the correct answers.

## Strategy 14—Give me five:

- Pupils have to state 5 of each of the aspects in the table.

1	2	3	4	5
Things about job production				
Things about batch production				
Things about flow production				
Impacts of technology on production				
Words associated with suppliers/procurement				
Things about just-in-case stock control				
Things about just-in-time stock control				
Things about quality control				
Things about quality assurance				
Qualities of a good supplier				

## Strategy 15–99 questions:

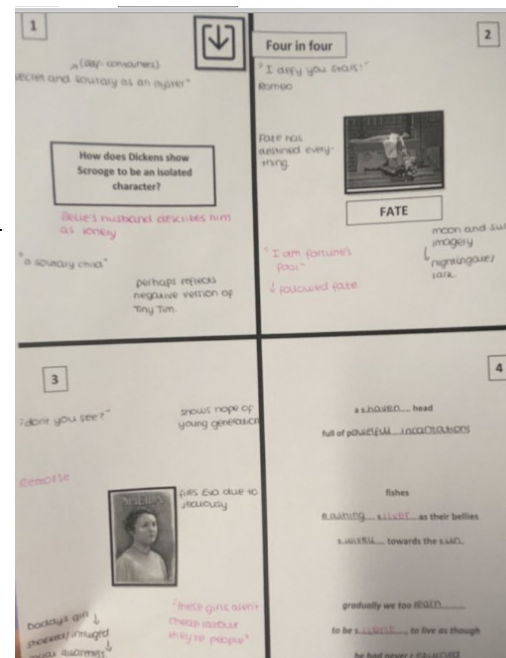
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- Pupils are given 99 questions to answer on a grid, all of which should be answered using only 1 word.
- This allows you to recap a huge amount of material very quickly.

Germany Revision: 99 words and Hitler isn't one																																																																																																			
When you have answered each question, colour code to show which topic it relates to:																																																																																																			
Weimar Government										Nazi rise to power					Nazi control																																																																																				
Life in Nazi Germany																																																																																																			
1. Which new subject taught at school was about the importance of selective breeding?	2. Hitler's book was called Mein Kampf. What does Kampf mean?	3. What is the name of the Communist group which challenged the Weimar Government in 1919?	4. Who were the Nazi secret police, set up by Goering and later led by Himmler?	5. If women stayed at home and had children, what financial help were they given?	6. What was the name of the new currency introduced in November 1923?	7. What word describes the agreement made between the Catholic Church and Hitler in 1933?	8. How many points were there in the first Nazi manifesto?	9. Unemployment decreased as the Nazis increased the size of the military. What was this called?	10. What plan did German reparations to £1.8 billion in 1929?	11. What was the name of the German Parliament?	12. Many Jews left Europe as persecution increased. What is this called?	13. What did the Nazi party merge to create the German Labour Front and remove opposition?	14. In what German city did the Beer Hall Putsch take place in November 1923?	15. Did things get better or worse for women in Weimar Germany?	16. What percentage of the school curriculum was for PE lessons, to ensure people were physically fit?	17. What word describes the financial problems Germany faced from 1929 onwards?	18. In Nazi Germany, did the amount of women in employment go up or down?	19. What is the name given to a Government made up of two or more political parties?	20. What did Hitler want to give Hitler the power to make laws without the Reichstag?	21. Which group was dealt with in the Night of the Long Knives on the 30 <sup>th</sup> June 1934?	22. Where were Jewish people sent after April 1935?	23. What word is given to the type of unemployment that was not included in official figures?	24. What was the name of the Kaiser who abdicated in 1918?	25. What laws were passed in 1935 which said that Jews were no longer German citizens?	26. Von Papen supported Hitler as Chancellor, saying that he would be able to make Hitler do what?	27. What German word means 'dictated peace'?	28. What 'miracles' were a youth group against the Nazis?	29. What is the name given to the Night of Broken Glass in November 1938?	30. What word describes the years from 1929 to 1932 for the Nazi party?	31. What word describes the 'gap' from 1924 to 1929 for many Germans?	32. Where were Jewish people sent after April 1935?	33. What percentage of Germans owned a radio by 1939 so they could hear Nazi propaganda?	34. What word describes the collapse of the American stock market in October 1929?	35. Who led the right-wing Putsch in 1930?	36. What happened to the Reichstag on 27 February 1933?	37. What German word was used to describe Hitler's inferior motives?	38. Who had successfully overthrown the Italian Government in 1922?	39. How many books were burned in May 1933 which were seen as anti-German?	40. Who became the German Foreign Secretary in 1932?	41. Who set up the German Workers' Party (DAP)?	42. What word means to control what books, newspapers, films and art says about the Government?	43. What pact was signed in 1925, which settled German borders?	44. Girls education at school was focused on preparation for what?	45. Marlene von der Lubow, who was blamed for the Reichstag fire, was from which political party?	46. How many people had joined the Nazi Party by 1924?	47. When Germany couldn't pay up in January 1932, where did France invade?	48. What name was given to the Nazi protection squad, which was led by Himmler?	49. Which Chancellor resigned in May 1932?	50. Boys education at school was focused on preparation for what?	51. If a woman had 4 children, what was she expected to set her husband?	52. What animal do we think of to remember the conditions of the Treaty of Versailles?	53. What happened to Catholic schools?	54. On what street is the American consulate system based?	55. What German word means 'stabbed in the back'?	56. What type of actions were set up to prepare young women for their role in the future?	57. How many seats in the Reichstag did the Nazis win in July 1932?	58. On Hitler's mother's birthday, what were women with a lot of children given?	59. What name was set up to govern the Weimar Republic?	60. How many political parties were there in Germany by July 1932?	61. In which prison did Hitler serve his sentence?	62. Who led the Protestant opposition to the Nazi party?	63. People learned about the need for more living space for Germans. What word did they use?	64. What was the plan that renegotiated reparations and allowed the USA to lend money to Germany in 1924?	65. Where was the conference held in 1926, at which Hitler increased power over the Nazi party?	66. What took place in Berlin in 1936 as an attempt to show Aryan superiority?	67. Who was the first Chancellor of Germany?	68. Who was the President from 1925 until he died in 1934?	69. What church was set up to govern the League of Nations in 1926. The League's aim was to maintain what?	70. What was the name of Hitler's private army, which was set up in 1921 and led by Ernst Rohm?	71. What cash did the army have to wear after the death of Hindenburg?	72. What name is given to a persecuted group who travelled across different countries?	73. What word was used to describe the end of the War in 1918?	74. What name was given to the Nazi intelligence agency?	75. At school, people learned Aryan Studies, which was about the superiority of which group of people?	76. Who was the German WWI General who supported Hitler in 1922?	77. What German word means 'Nationalism of the state'?	78. Was it legal or illegal to be gay?	79. Germany joined the League of Nations in 1926. The League's aim was to maintain what?	80. Was Hitler for or against women wearing make up and dating?	81. What word means extremely high inflation in 1923?	82. What word describes the Nazi intention to have the state control large businesses?	83. In the German phrase 'Kinder, Kirche, Kuche', what does Kuche mean?	84. What word means information which is designed to influence beliefs and actions?	85. What Church was set up in 1933 to support the Nazi party?	86. How many different youth organisations were set up?	87. How many different youth organisations were set up?	88. Which Nazi did Hitler put in charge of propaganda?	89. What name was given to people from Eastern Europe who were seen as inferior?	90. What German word means leader?	91. How many million people were unemployed in Germany by 1932?	92. One job creation scheme was a massive building of motorways. What were they called?	93. In what year were concentration camps set up to detain enemies of the state?	94. What is the name of the first German law to pay after the War?	95. How many months was Hitler in prison?	96. What law was passed in 1933 to stop some disabled, blind, deaf and autistic people from having children?	97. What is the name of the right-wing group that challenged the Weimar Government in 1927?	98. What word describes people who were imprisoned or killed because they opposed the Nazis?	99. Did Hitler plead guilty or not guilty in February 1924?	Your score: 1-25: Needs urgent help 26-50: Competent 51-75: Quite good 76-90: Good progress 91-99: EXCELLENT!

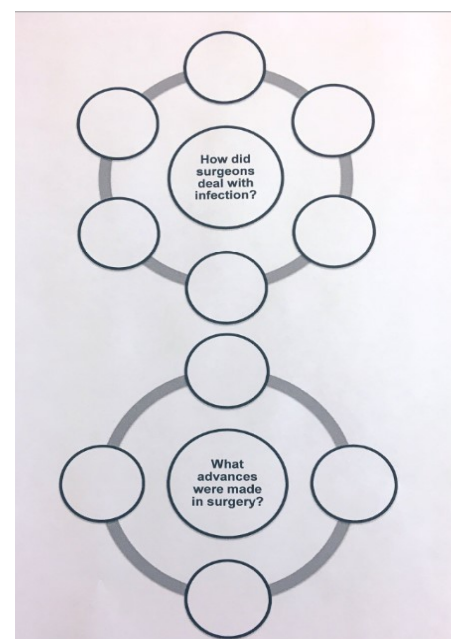
## Strategy 16–Four in four:

- A simple grid with 4 aspects of a topic in each square.
- Pupils have four minutes to retrieve knowledge on each of the four topics.
- This can then be discussed as a class with pupils adding in anything they did not get.
- This could be extended to any number of aspects/time frames, for example 'five in fifty' if you want to cover topics in more depth.



## Strategy 17–Retrieval practice circles:

- The question of topic is put in the inner circle.
- You choose the number of outer circles for pupils to complete.



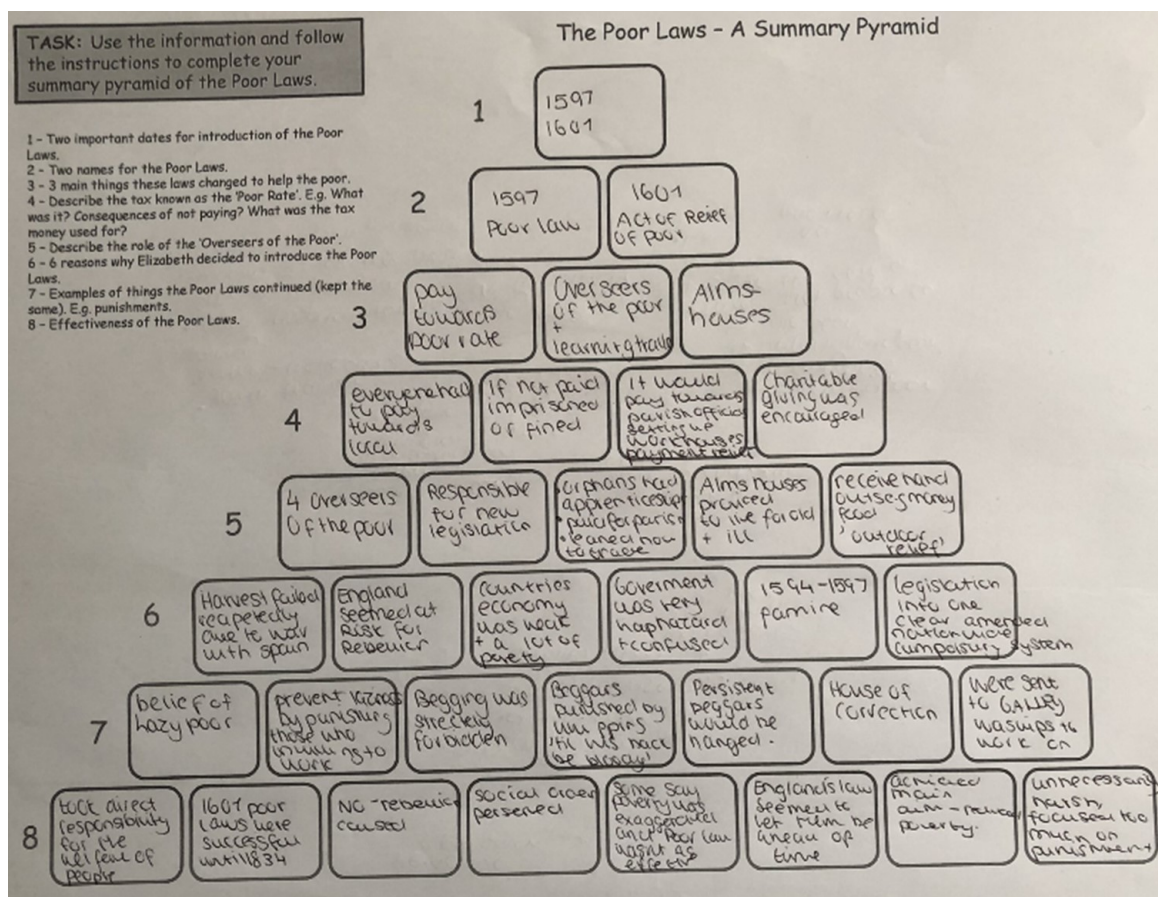
## Strategy 18—Retrieval practice placemat:

- This is a mat which can be put on desks or displayed as a slide.
- It gives general points which pupils can answer independently and then discuss in pairs.



## Strategy 19—Retrieval practice pyramid:

- This is a pyramid made of boxes—1 box on the top row, 2 boxes on the second row, etc.
- You give pupils different questions to answer for each row and they have to fill the boxes.



## **Strategy 20—Higher-order tasks:**

- Retrieval practice should move on to include higher-order tasks. This includes:
  1. Why questions
  2. Analyse questions
  3. Evaluate questions
  4. Because sentence completion (.....because..... )
  5. So sentence completion (.....so.....)
  6. But sentence completion (.....but.....)
  7. Comparison tasks
  8. Essay plans

This can also be achieved though further verbal questioning when going through the answers with the class.

## **References:/further reading**

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