

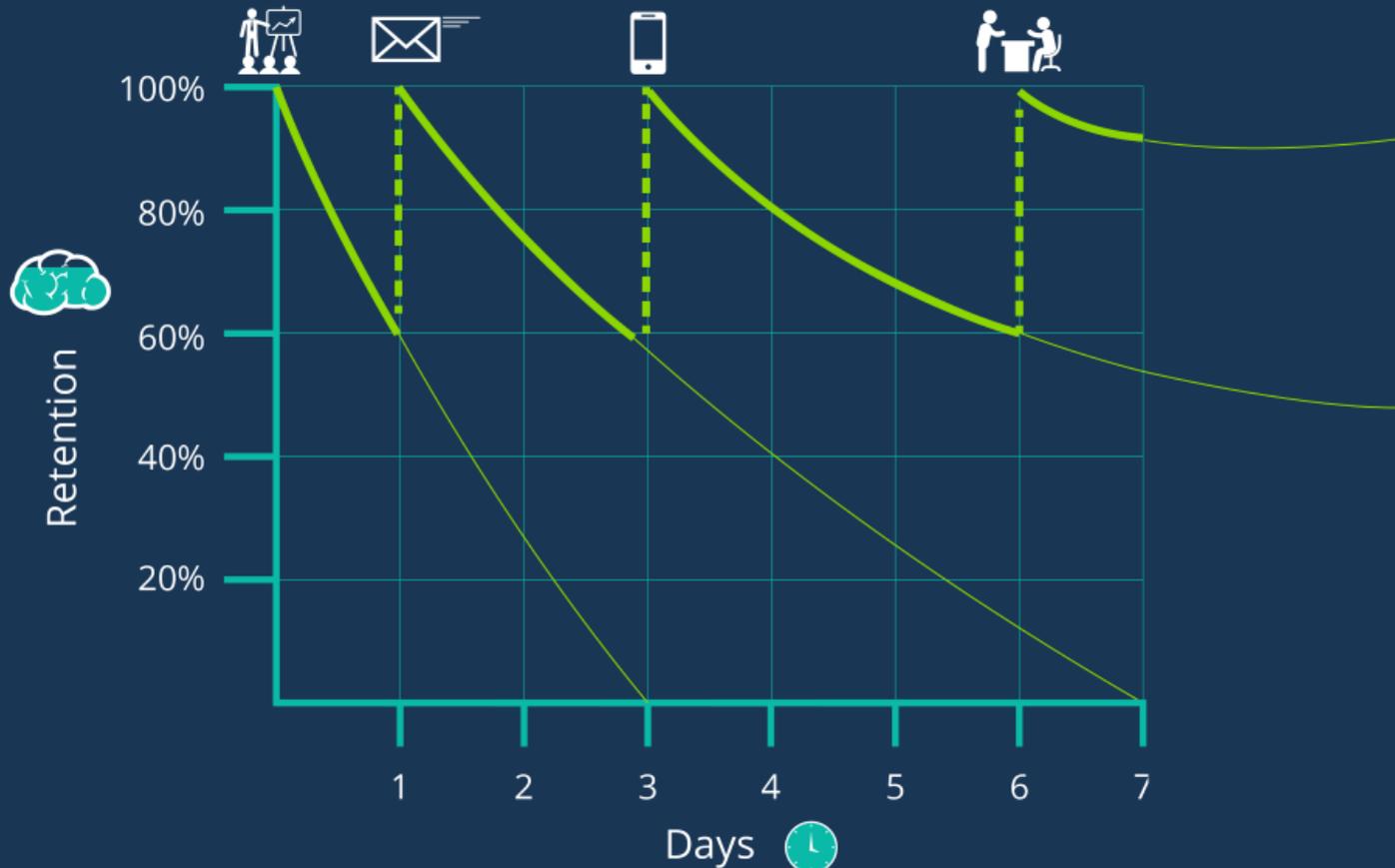
How students learn



Mr Jones
Assistant Principal

The Ebbinghaus forgetting curve

COMBATING THE FORGETTING CURVE



- After 24 hours, about two-thirds of anything memorized is forgotten.
- Lengthening spacing strengthens retrieval.

What we do in school:

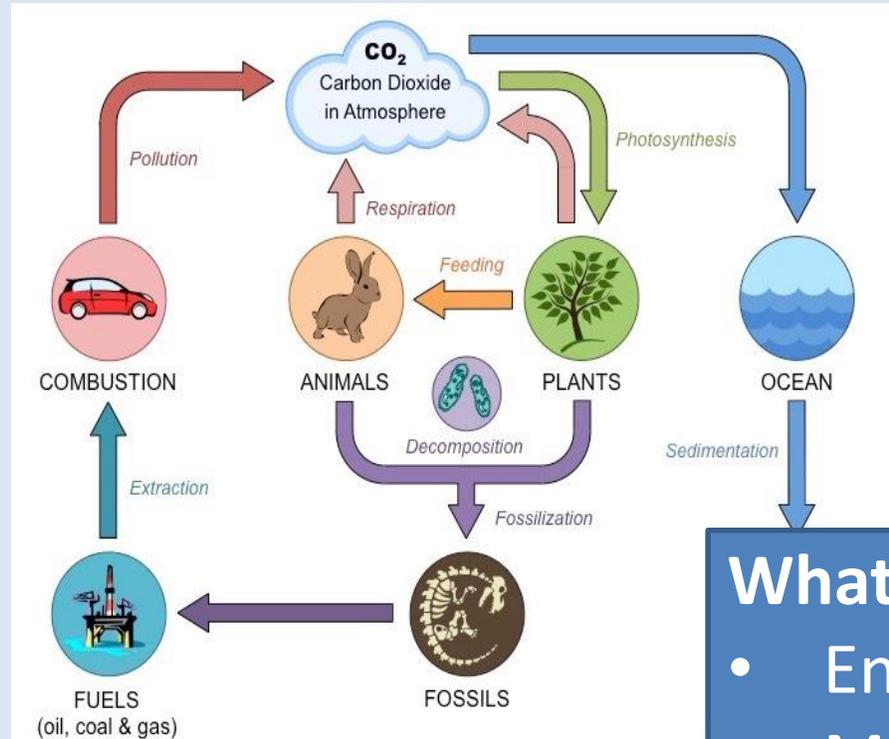
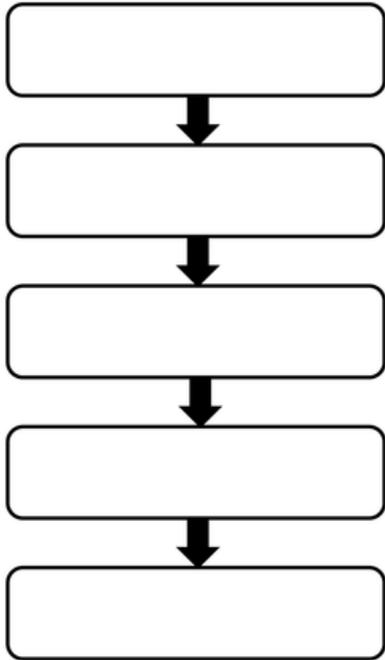
- Retrieval starters
- Interleaving

What to do at home:

- Repetition

The importance of visual images

L1: How flow charts help us to understand a process



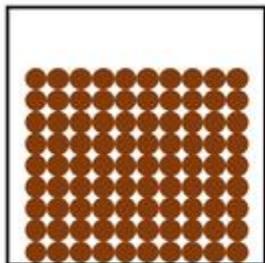
- Pictures lend themselves well to the way that we organise information.
- Schema - mental structures that an individual uses to organize knowledge.

What we do in school:

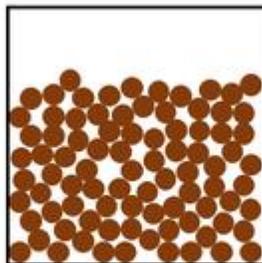
- Encourage information processing
- Modelling using visualizers

What to do at home:

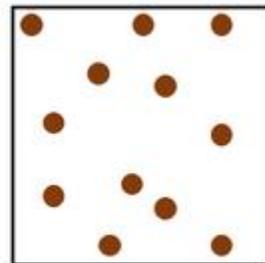
- Make mind maps
- Process information on flash-cards



Solid



Liquid



Gas

The importance of speaking/hearing



- Harvard University claim that if you read something out loud or write it down then you are 8 times more likely to remember it.

What we do in school:

- Opportunities to develop oracy
- Get students to teach each other
- Read keywords out loud

What to do at home:

- Explain something out loud to a sibling/parent/yourself

Cognitive conflict

There *vs.* **Their**
vs. **They're**

- Avoid cognitive conflict. Un-learning something that is wrong is quite hard.

What we do in school:

- Good teaching
- Address misconceptions
- Encourage questions

What to do at home:

- Ask your teacher if you're unsure
- Ask a friend

Cognitive load

Cognitive load is the kind of information held by the working-memory at any given time and Cognitive Load Theory in the classroom looks at how teachers can get the most from their children's learning while in school.

Simplifying/reducing/processing information prevents Cognitive overload.



What we do in school:

- Chunking lessons
- Clear modelling
- Effective sequencing

What to do at home:

- Plan your revision
- Be clear what you need to know

Active learning



- If learning is passive then new synaptic links won't be formed.

What we do in school:

- Questioning not lecturing
- Get students 'doing'

What to do at home:

- Make flash card/mind-maps etc
- Use past papers
- Test yourself

Past papers

- Some people find practicing past papers to be the most useful and easiest way to revise.
- Make sure you have the right exam board and tier

What we do in school:

- Use them in lessons
- Make them available to students

What to do at home:

- Complete them and ask your teachers if you can't find them.
- Check what you've done against the mark scheme and if necessary, re-do them.

AQA

Please write clearly in block capitals.

Centre number

Candidate number

Surname

Forename(s)

Candidate signature

GCSE

F

Foundation Tier Unit 1 Statistics and Number

Wednesday 4 November 2015

Morning

Time allowed: 1 hour

Materials

For this paper you must have:

- a calculator
- mathematical instruments.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 54.
- The quality of your written communication is specifically assessed in Questions 2, 3 and 14. These questions are indicated with an asterisk (*).
- You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.



WMP/Nov/15/43601F/EE

43601F

The structure and function of DNA

Chromosomes and their genes are made of a molecule called DNA which is found in the nucleus of the cell. DNA molecules carry the code that controls what your cells are made of and what they do. DNA is a double helix which means it is double stranded and twisted. A short section of DNA is called a gene. Every gene codes for a particular sequence of amino acids, to make a specific protein.

Task:

Make a flash-card that summarises the information on this slide.

Sperm and egg cells
Have 23 chromosomes in
Their nuclei.

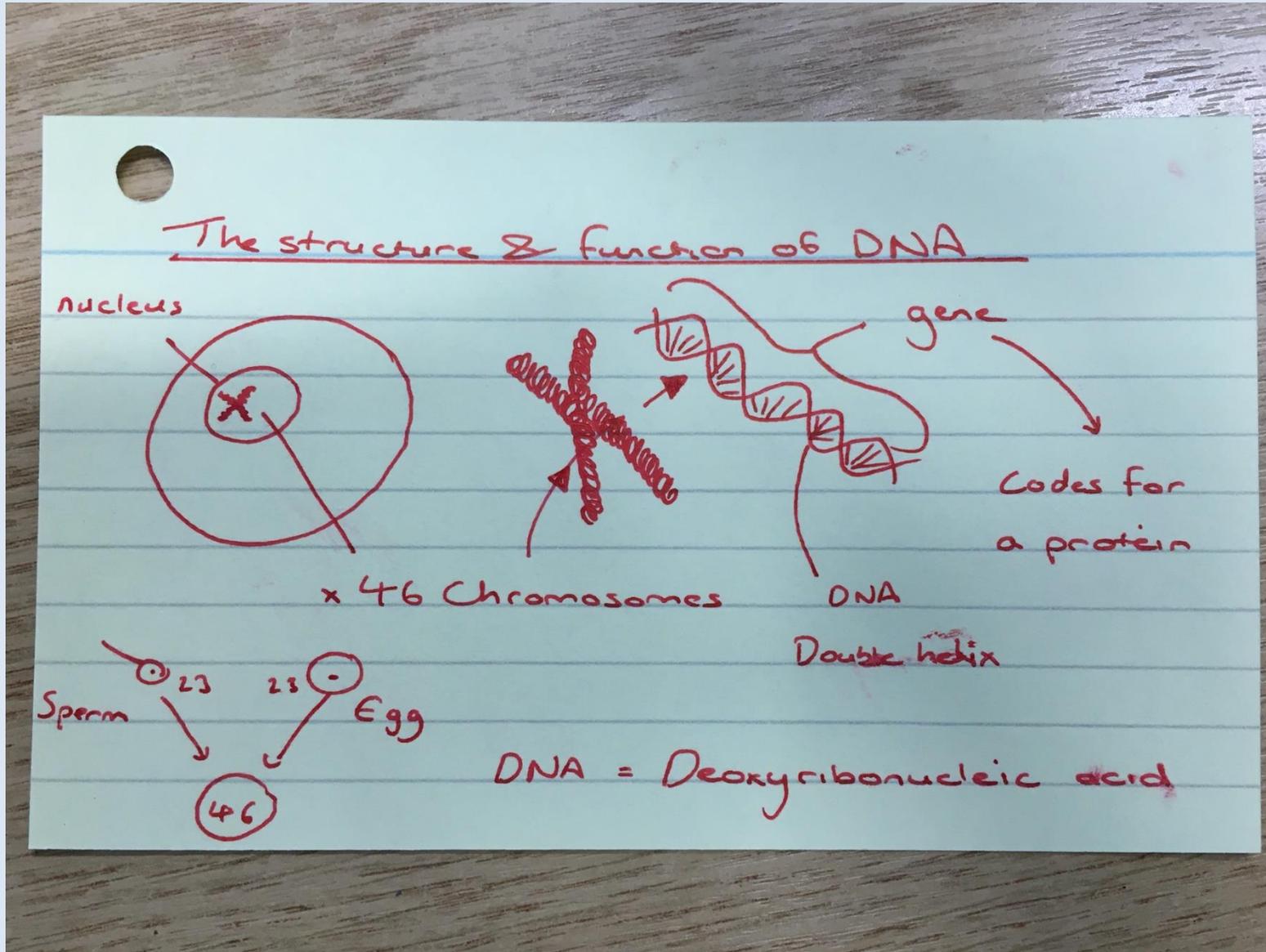
A body cell has 46
chromosomes in the
nucleus

Each chromosome
is a very long molecule
of **tightly coiled** DNA.



DNA stands for
deoxyribonucleic
acid.

An example



Process, simplify, reduce the information.

Use images/diagrams where possible/appropriate.

Test yourself

Repeat

Test yourself

- 1) What term describes the shape of DNA? **Double helix**
- 2) How many chromosomes are there in a normal somatic body cell?
46
- 3) How many chromosomes are there in an egg or sperm cell?
23
- 4) Where is DNA found?
The nucleus of the cell
- 5) What does DNA do?
Gives us our characteristics, codes for specific proteins
- 6) What does DNA stand for?
Deoxyribonucleic acid.