CDA: Inclusive Practice

Key need - Science is already an engaging subject, with pupils actively participating in practical learning. However, monitoring by the subject leader identifies that inclusive strategies are not yet consistently embedded across all classes.

Progress: The subject leader has worked with staff to develop a shared approach to inclusion, supported by SLT through prioritisation in CPD. Teachers are increasingly using scaffolds, visuals and structured support to ensure accessibility. Science is made hands on and practical to demonstrate and support these.







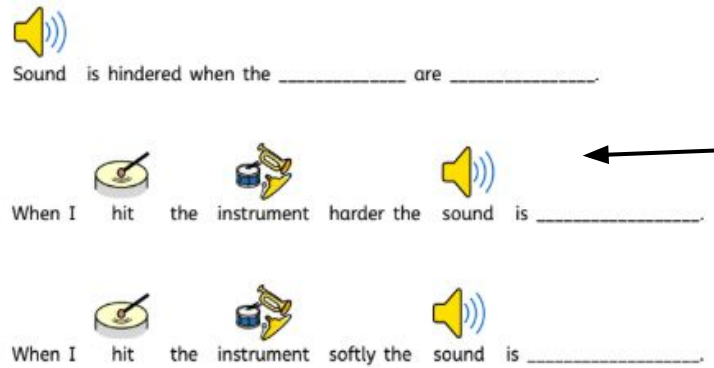
Children in classes and in inclusion unit actively accessing and engaging in practical lessons

Learning walk: 6.1.2026

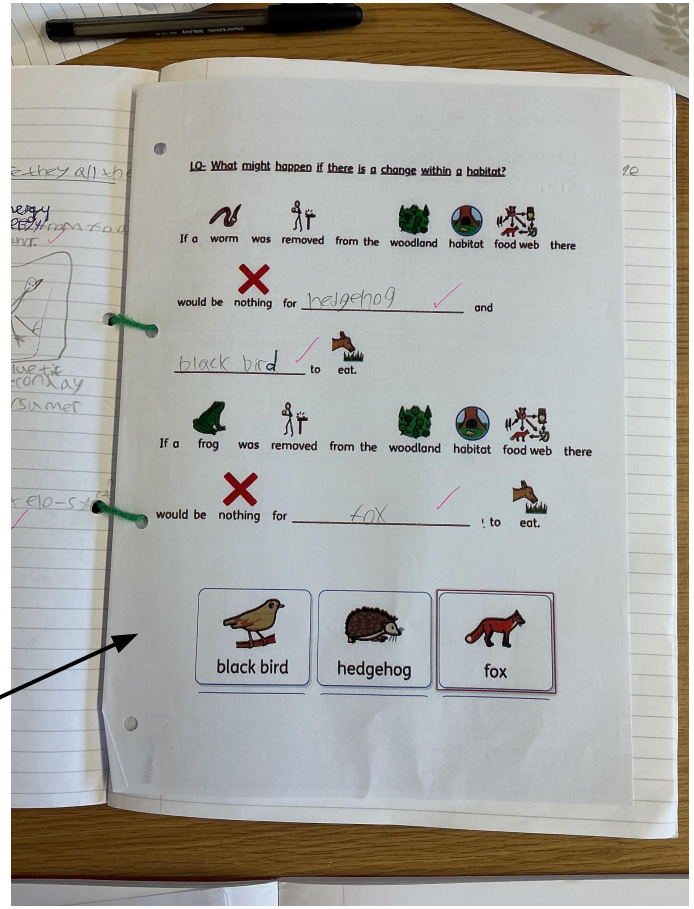
Strengths:
Visuals and scaffolds used to support learners
disadvantaged pupils (SEND/EAL/PP) actively engaging in lesson
word banks visible
equipment being used safely and by all

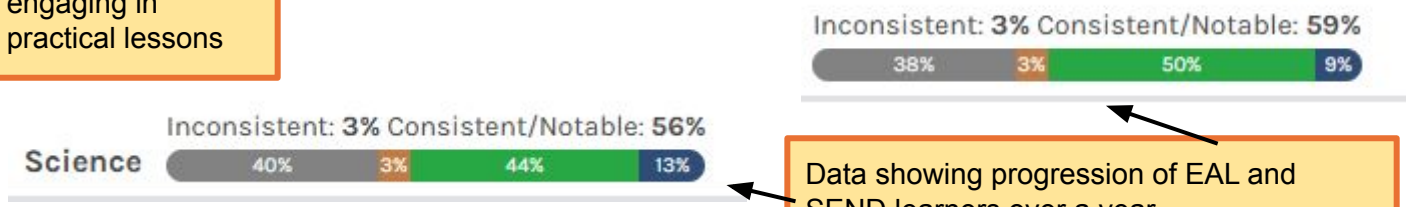
Learning walk notes showing participation and support.

Impact: All children now engage confidently in science lessons, with increased participation from SEND and EAL pupils observed across classes. Pupil voice reflects high levels of enjoyment.



Scaffolded dual-coding resources children's word showing accessibility of different learners





Data showing progression of EAL and SEND learners over a year

Next steps:

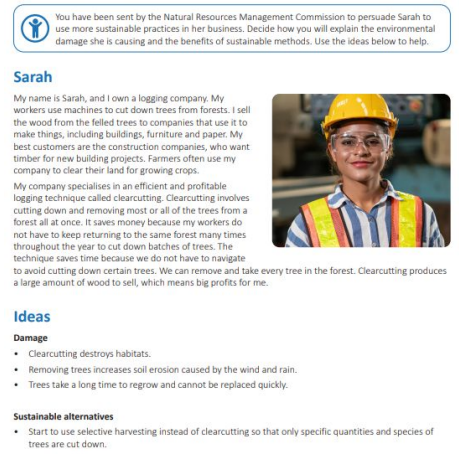
- Embed inclusive strategies within curriculum planning
- Monitor consistency across all classes

CDA: Representation

Key need - Pupil voice shows strong enthusiasm for science but are less aware of diverse scientists or how science links to their own lives.

Progress: "Scientists Like Me" is being introduced through resources and Collective Worships to improve representation and make learning more relevant. Early implementation is beginning to raise awareness.

Cross-curriculuar resources used in Geography to show STEM careers and impact on the world



You have been sent by the Natural Resources Management Commission to persuade Sarah to use more sustainable practices in her business. Decide how you will explain the environmental damage she is causing and the benefits of sustainable methods. Use the ideas below to help.

Sarah

My name is Sarah, and I own a logging company. My workers use machines to cut down trees from forests. I sell the wood from the felled trees to companies that use it to make things, including buildings, furniture and paper. My best customers are the construction companies, who want timber for new building projects. Farmers often use my company to clear their land for growing crops.

My company specialises in an efficient and profitable logging technique called clearcutting. Clearcutting involves cutting down and removing most or all of the trees from a forest all at once. It saves money because my workers do not have to keep returning to the same forest many times throughout the year to cut down batches of trees. The technique saves time because we do not have to navigate to avoid cutting down certain trees. We can remove and take every tree in the forest. Clearcutting produces a large amount of wood to sell, which means big profits for me.

Ideas

Damage

- Clearcutting destroys habitats.
- Removing trees increases soil erosion caused by the wind and rain.
- Trees take a long time to regrow and cannot be replaced quickly.

Sustainable alternatives

- Start to use selective harvesting instead of clearcutting so that only specific quantities and species of trees are cut down.

Resources used to show STEM opportunities



Eco-club litter picking in local community, tackling community issues



Science Lead: "During our collective worship about 'Scientists Like Me', I asked you children: 'Who could be a scientist?' Immediately, one of our Year 4 pupils put their hand up confidently and said, 'Me.' What was really powerful was seeing the reaction from other children - you could see them sitting up straighter, looking at each other, and then more hands started going up." "Can you tell me about what you thought because of this response?"

Pupil K (Year 4): "I said 'me' because we've been learning about scientists from different countries and backgrounds and Luton. Some of them look like me and my family. It made me think that I could do science too, not just learn about it."

Pupil L (Year 5): "When [Pupil K] said 'me', I thought about it too. I always thought scientists were just people in white coats in labs, but we've learned about scientists who work in hospitals, in space, with animals, and even in our local community. That made me think I could be one."

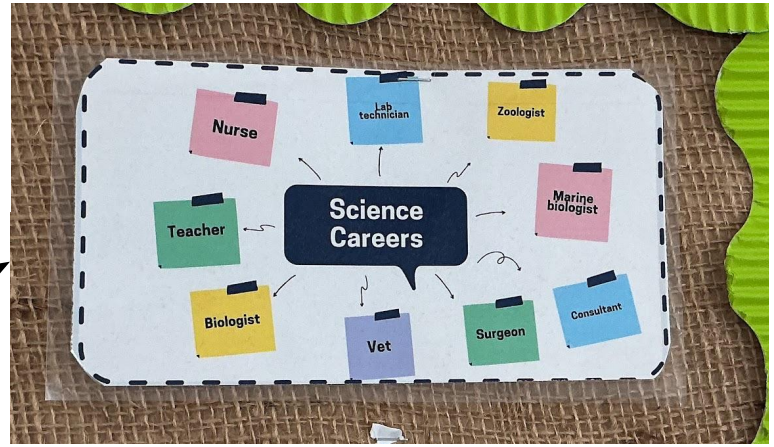
Pupil M (Year 6): "I liked learning about scientists who speak the same languages as my family. It showed me that being bilingual could actually help me as a scientist because I could work with people from different countries."

Pupil N (Year 3): "My mum works at the hospital and I never thought of her as a scientist before. But now I know that what she does is science. That made me proud."

Pupil voice in response to Scientist Like Me collective worship.

Impact: Children are beginning to recognise that science is relevant to their lives and show curiosity about different scientists.Pupil discussions show increased engagement when learning is linked to real-life contexts. This has also shone through in curiosity in the wider curriculum.

Display of Science careers in classrooms



Next steps:

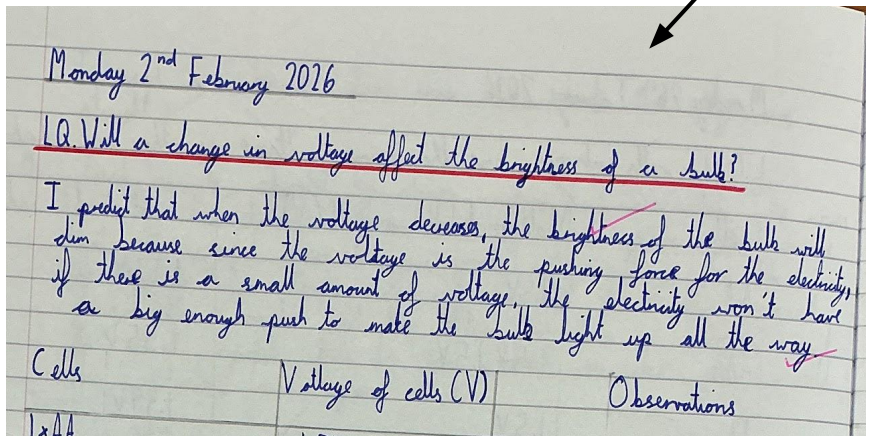
- Embed representation across curriculum
- Strengthen links to local context

CDB: Knowledge Progression

Key need - Science teaching already provides strong coverage and engaging lessons. However, monitoring shows that pupils do not always articulate how knowledge builds over time.

Progress: The subject leader has worked with staff to introduce knowledge organisers and strengthen sequencing. This has been supported through CPD and collaborative planning.

Child using previous knowledge to support predictions

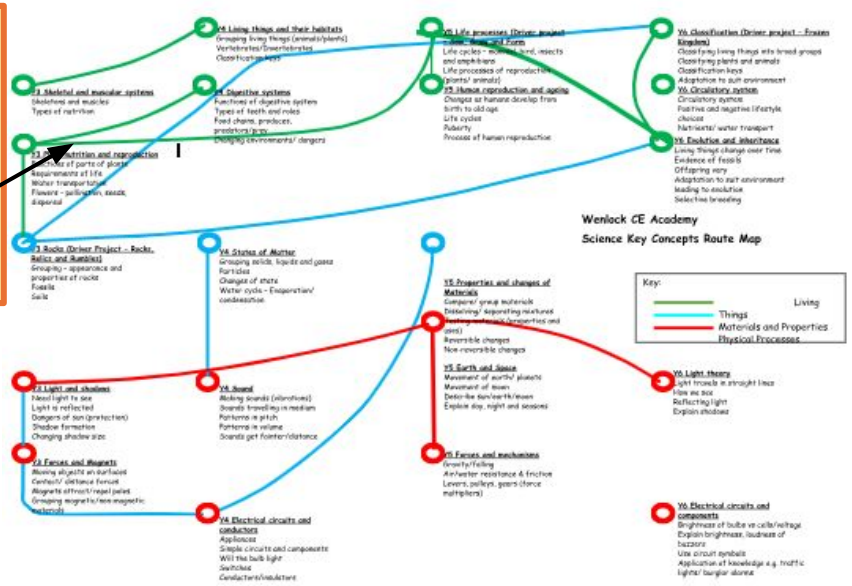


Share the information on the slides with the children and recap their year 3 learning noticing that the rougher a surface the greater the frictional force. Within todays lesson we want to take this a step further and identify if there is a way we can generate or impact the amount of friction even more.

Planning incorporating retrieval practice from previous year group

Impact: Book scrutiny and pupil voice show that children now refer to prior learning more frequently and can explain what they have learned in previous lessons Some pupils are beginning to describe how their knowledge builds over time, representing an improvement from the initial position, although this is not yet consistent across all classes.

Road map document showing progressi-o n and links of core knowledge



LQ 8 - What effect does different exercise have on heart rates? (red- comparative and fair testing)

Retrieval practice - children to each have a card to match up with each other to find the diagram, name and definition of the part of the circulatory system. SEND children work in pairs - The heart - find a friend

National Curriculum Thread	Year 3/4 Cycle B (Year 3 Single Curriculum)	Year 3/4 - Cycle A (Year 4 Single Curriculum)	Year 5	Year 6
Bodily Processes and Health	**NC:** Identify that animals, including humans, need the right types and amounts of nutrition and cannot make their own food. Animal Nutrition and the Skeletal System - Asking questions (Autumn - L2) Pupils will build on prior learning by classifying diets of different living things, exploring the human diet as an omnivore, and comparing diets across species. Animal Nutrition and the Skeletal System - Animals diets (Autumn - L3) Pupils will build on prior learning by exploring seasonal changes in animal diets, classifying animals as carnivores, herbivores, or omnivores, and recording comparisons using sentence stems and	**NC:** Describe the simple functions of the basic parts of the human digestive system. Food and the Digestive System - Purpose and parts (Autumn - L4). Pupils will build on prior learning by exploring how food is processed in the human body, labelling the digestive system and describing the function of each part.	**NC:** Describe the changes as humans develop from birth to old age. Human Reproduction and Ageing - Human gestation stage (Spring - L5). Pupils will build on prior learning by exploring human gestation, creating a chronological timeline of development, and answering questions to deepen their understanding. Human Reproduction and Ageing - Human juvenile stage (Spring - L6). Pupils will build on prior learning by investigating how humans change during the juvenile stage, collecting observations, and writing scientific explanations of development. Human Reproduction and Ageing - Human adolescent stage (Spring - L7).	**NC:** Describe the ways in which nutrients and water are transported within animals, including humans. Circulatory System - Bodily systems (Autumn - L1). Pupils will build on prior learning by exploring how different bodily systems support the seven life processes, using prior knowledge and research to explain their functions. **NC:** Recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions. Circulatory System - Classifying foods (Autumn - L9) Pupils will build on prior learning by exploring how food choices affect the body, using nutritional information to identify the impact of sugar, salt and fat on health.

Core thread document created to show how knowledge of 'bodily processes and health' develop from year 3-6

Planning incorporating retrieval practice

Next steps:

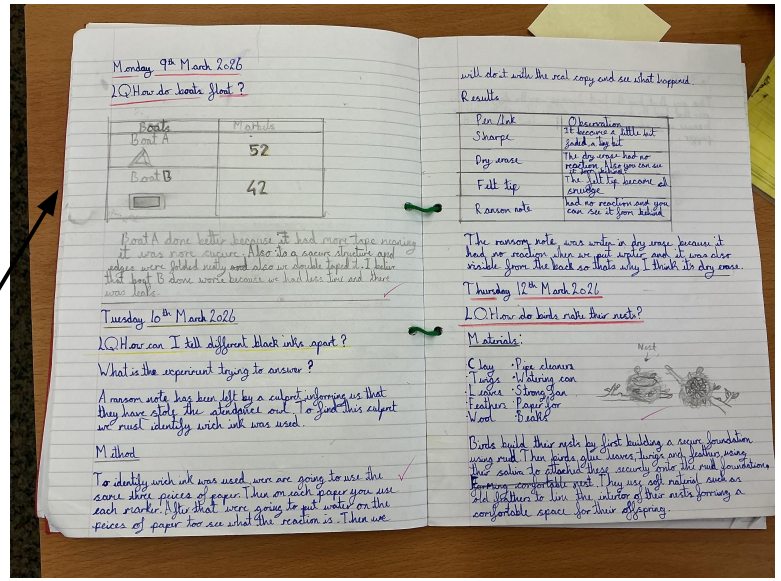
- Embed consistent use of progression tools and knowledge organisers
- Monitor pupil articulation

CDB: Enquiry Progression

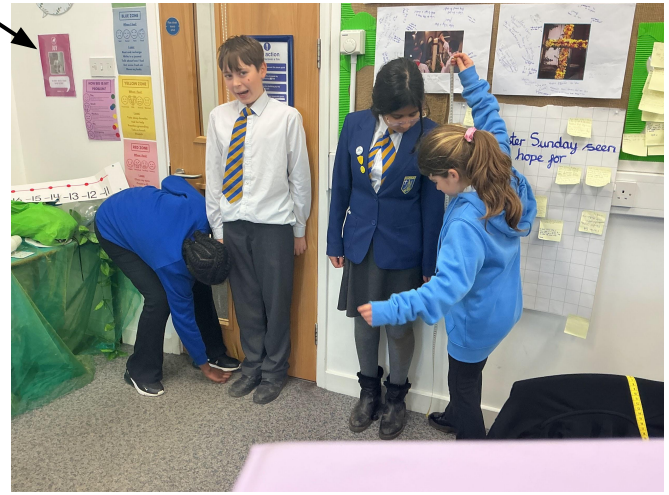
Key need - Pupils enjoy practical science and engage enthusiastically, but enquiry approaches are not yet systematically developed over time.

Progress: Enquiry progression documents are being introduced to support a more structured approach to developing enquiry skills. Children are underlining their lesson learning questions in corresponding enquiry colour but inconsistency occurs within discussion of skills during planning and teaching.

Children's work showing full investigative method



Children engaged in practical work using working scientifically skills



Pupil voice showing understanding of enquiry

Science Lead: "Can you tell me about the different types of enquiry you use in science?"

Pupil B (Year 6): "It helps us to classify our enquiries. Our questions help us link back to the classification of what we're doing. Red is for comparative and fair testing - when you test something. For example, we kept the bulb the same but changed the batteries to see if they would brighten. You keep all variables the same but change only one variable."

Pupil C (Year 6): "Green is for using secondary resources - using other people's science to learn from it."

Impact: Monitoring and pupil work show that children engaging with a wide range of enquiry types and are more aware of how investigations are structured. However, independence in selecting enquiry approaches remains limited, indicating that progression in disciplinary knowledge is developing but not yet embedded.

Wenlock CE Academy
Science Curriculum and Skills Progression

	Autumn 1	Autumn 2	Spring 1	Spring 2	Su
Year 3	**Skeletal and muscular systems** • Ask questions about the world around them and explain that they can be answered in different ways. • Compare and contrast the diets of different animals. • Describe how humans need the skeleton and muscles for support, protection and movement. • Describe the requirements of plants for life and growth (air, light, water, nutrients and room to grow) and how they vary from plant to plant. • Explain the importance and characteristics of a healthy, balanced diet.		**Forces and Magnets** Compare and group materials based on their magnetic properties Compare how objects move over surfaces made from different materials. Explain that an object will not move unless a push or pull force is applied, describing forces in action and whether the force requires direct contact or whether the force can act at a distance (magnetic force). Investigate and compare a range of magnets (bar, horseshoe and floating) and explain that magnets have two poles (north and south) and that opposite poles attract each other, while like poles repel each other.		**Plant re** Describe of plants (air, light and room they vary plant. Draw and of a flow Investiga transport Name and functions parts of

Wenlock CE Academy
Science Curric[illegible] Skills Progression

Year 5	**Properties and changes in materials** • Compare and group everyday materials by their properties, including hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism. • Explain, following observation, that some substances (solutes) will dissolve in liquid (solvents) to form a solution and the solute can be recovered by evaporating off the solvent. • Describe, using evidence from comparative or fair tests, why a material has been chosen for a specific use, including metals, wood and glass. • Separate mixtures by filtering, sieving and evaporating. • Explain the precautions needed for working safely when heating, burning, cooling and mixing	**Human reproduction and ageing** •Compare the life cycles of animals, including a mammal, an amphibian, an insect and a bird. •Describe the changes as humans develop from birth to old age. •Describe the life process of reproduction in some plants and animals. •Describe the process of human reproduction. •Explain why personal hygiene is important during puberty. **Life processes (Driver project – Sow, Grow and Farm)** •Compare the life cycles of animals, including a mammal, an	**Forces and Mechanisms** •Compare and describe, using a range of toys, models and natural objects, the effects of water resistance, air resistance and friction. •Describe and demonstrate how simple levers, gears and pulleys assist the movement of objects. •Explain that objects fall to Earth due to the force of gravity.

Enquiry skills progression through topics from Year 3-6

Enquiry types displayed in classrooms



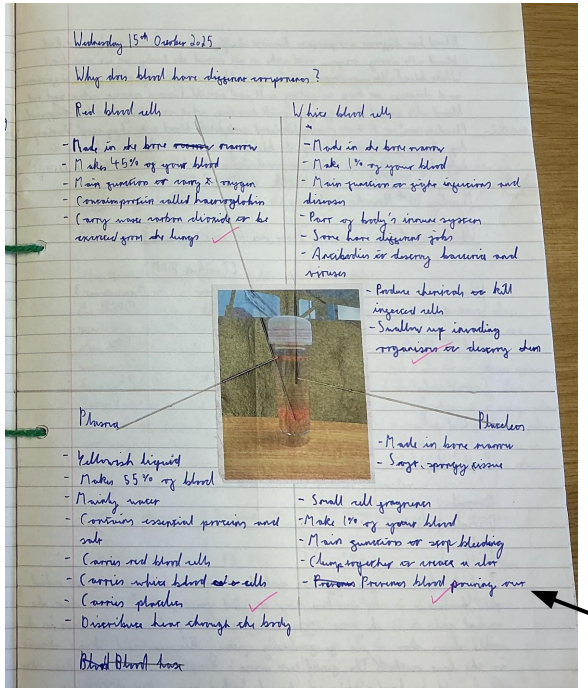
Next steps:

- Embed enquiry progression across all year groups
- Monitor independence in enquiry

CDC: Planned links

Key need - Science is well-established, with opportunities for writing and maths already present, though not always explicitly planned.

Progress: Planning is being refined to conclude more explicit links to maths and English, particularly through data handling and writing. The subject leader has worked with other subject leaders (English, Maths and RE) to strengthen cross-curricular planning, supported by SLT.

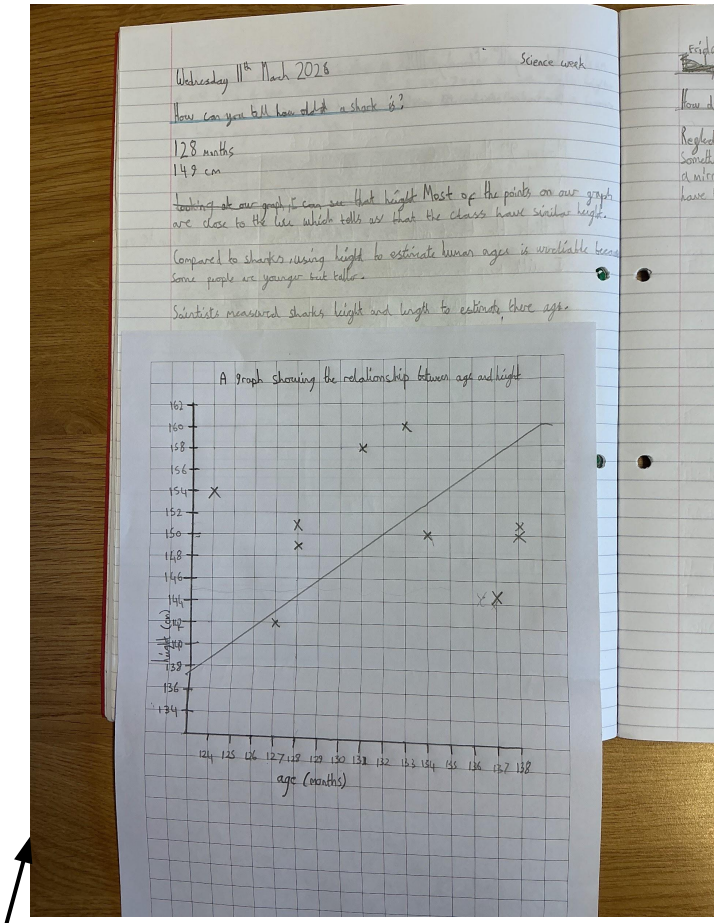


Pupil work showing different recording types e.g. bullet point information

100m sprint. Once the data is collected, share the Scatter graphs presentation and provide the children with graph paper and a printed copy of the completed class data table. Encourage them to draw and label each axis of the scatter graph and plot the class results. Ensure that heart rate is plotted on the x-axis and sprint time on the y-axis. Look at the plotted points together and ask the children to draw a line of best fit, if possible. At the end of the session, encourage the children to interrogate their data to see any correlation between heart rate and running speed and decide if they have proved or disproved the hypothesis.

Planning showing data handling skills used in lessons

Impact: Book scrutiny shows that children now apply mathematical and literacy skills within science, including data handling and extended writing. This reflects a shift from incidental links to more planned opportunities, although consistency across other subjects is still developing.



Pupil work showing mathematical graphing skills

Next steps:

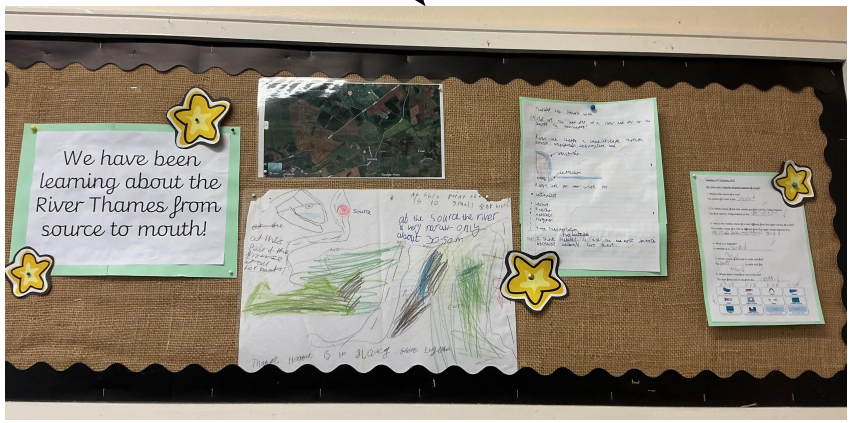
- Embed links within medium-term planning
- Monitor consistency across classes

CDC: Pupil understanding of subject links

Key need - Pupils enjoy science but do not consistently recognise connections between science and other subjects.

Progress: Teachers are increasingly making links explicit, supported by subject leader guidance.

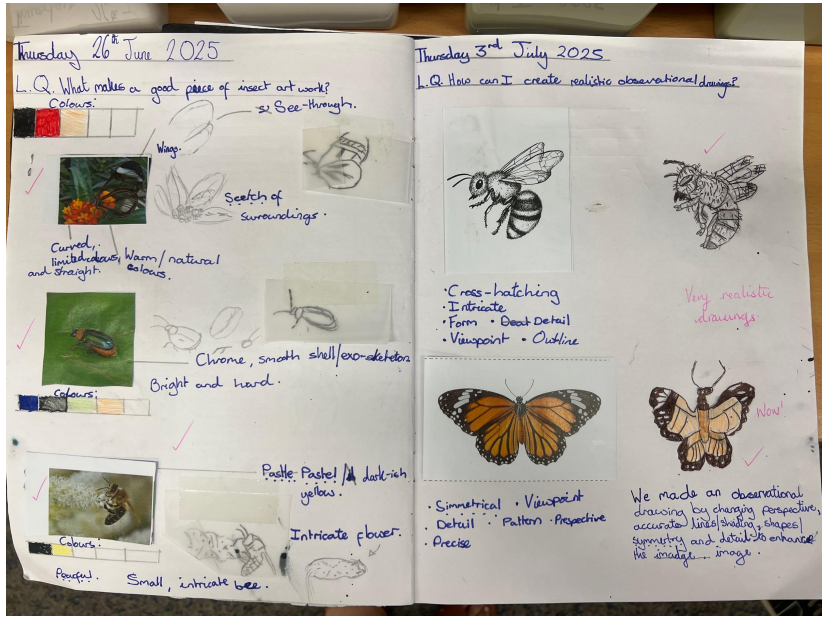
Display linking geographical skills to Science



Science fair presentation of child using speaking/ presenting skills



Impact: Pupil voice indicates that children are beginning to recognise connections between science and other subjects when these are explicitly taught. However, this understanding is not yet consistent, suggesting that connections need to be further embedded to secure deeper learning.



Pupil work showing ilnks within Science and Art

Pupil voice showing child's understanding of links within Science and DT

Science Lead: "Can you give me an example of when science has connected to other subjects?"

Pupil F (Year 3): "Building bird nests in Science Week helped us understand how to build secure structures, like we do in DT. It also links to other science we've done, looking at how animals use their own adaptations and natural abilities."

Next steps:

- Strengthen explicit teaching of connections
- Monitor through pupil voice

TLA: Questioning

Key need - Classrooms are characterised by positive relationships and active discussion. However, questioning is often teacher-led limiting opportunities for pupil-led enquiries.

Progress: The subject leader has introduced structured questioning approaches, supported through CPD, modelling and sentence stems.

Planning of children creating their own learning questions

LQ - This is going to be made and decided on by the children depending upon what they would like to investigate. It needs to include something along the line of the use of lubricants and surfaces and their impact on a distance caused by friction.

We will be underlining using a red pencil

Part A: Paired Practice (10 minutes)

1. Pupils work in pairs
2. Give them this challenge: **"Create a classification key that can identify ANY of the 8 life stages"**
3. Provide this structure to help them:
   - Start with a question that eliminates the most stages
   - Use physical characteristics or abilities
   - Draw it as a branching diagram (like a tree)
   - Use rulers for neat lines
4. **Success criteria** (write on board):
   - Uses YES/NO questions only
   - Has at least 6 questions
   - All 8 life stages can be identified
   - Uses scientific vocabulary
   - Drawn neatly with ruler
5. **Circulate and support**: Common good starting questions:
   - "Has the person been born yet?" (eliminates pregnancy)
   - "Can the person walk?" (eliminates infancy)
   - "Is the person still growing?" (separates children from adults)
   - "Does the person go to school?" (identifies childhood)

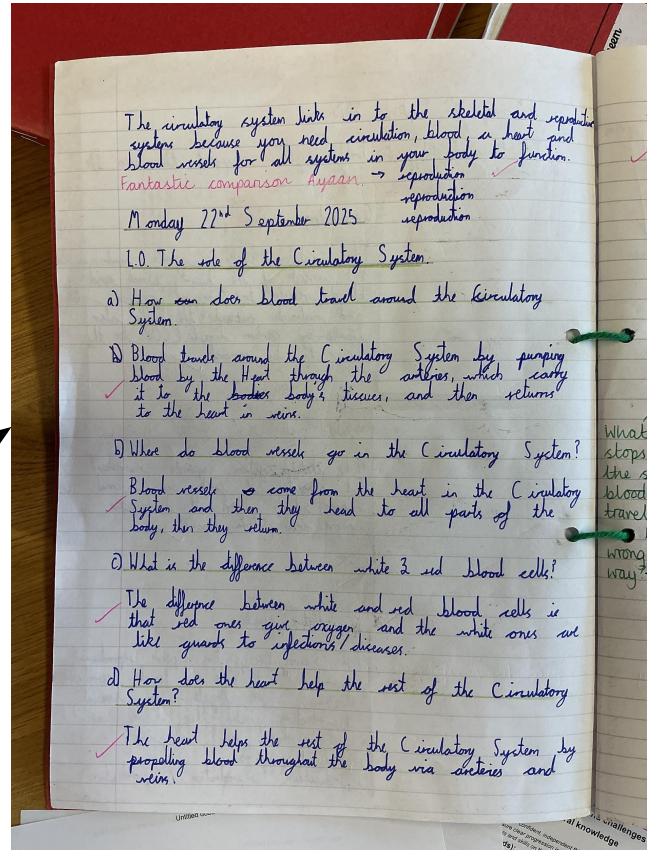
Planning showing paired work to ask questions to create classification key

Impact: Lesson observations and pupil voice show that children now contribute more actively to discussions and respond with increased confidence. Some pupils are beginning to generate their own questions, representing a shift from predominantly teacher-led dialogue, although this remains inconsistent.

Learning walk: 6.1.2026

Strengths:
structured questioning seen in lessons
partner talk (especially Kagan techniques) planned into learning
children actively engaging in discussions with partners

Monitoring notes showing structured partner talk in lessons



Pupil work showing asking and answering own scientific questions

Next steps:
- Develop pupil-led enquiry opportunities
- Monitor questioning strategies overtime

TLA: Vocabulary

Key need - Scientific vocabulary is beginning to be used consistently across the school in discussions and work.

Progress: Vocabulary teaching is becoming more explicit through modelling, discussion and use of keyword displays. Vocabulary progression documents have been implemented and displayed.

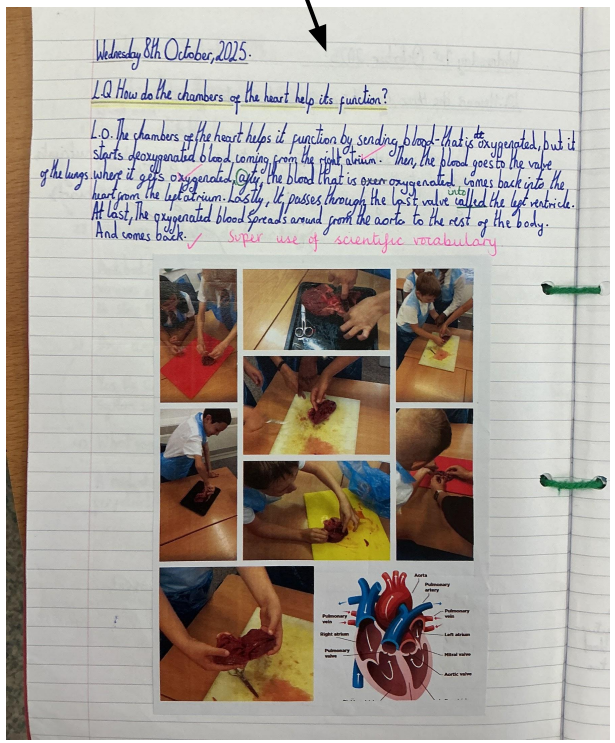
Science Lead: "How do you use scientific vocabulary in your lessons?"

Pupil D (Year 4): "We use what we've been taught throughout the lesson. For example, about life cycles - looking at the vocabulary that we've used in the lessons helps us remember and learn the learning question."

Pupil E (Year 5): "We use vocabulary from lessons to answer the learning question. We're introduced to new vocabulary in lessons, and throughout lessons teachers explain what they mean. Then we use them in our explanations and answers."

Pupil voice showing understanding of importance of vocabulary and how it is taught

Pupil work showing secure use of vocabulary



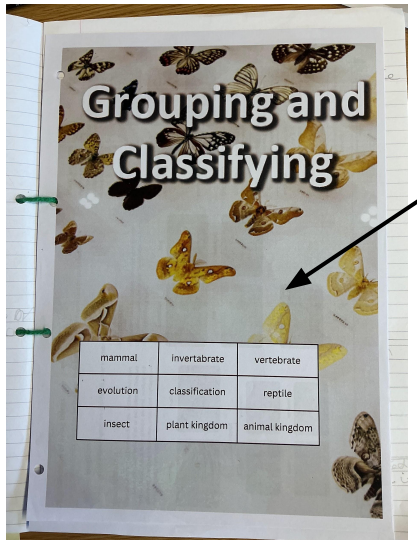
Wednesday 8th October, 2025.

L.Q. How do the chambers of the heart help its function?

L.O. The chambers of the heart helps it function by sending blood that is deoxygenated, but it starts deoxygenated blood coming from the right atrium. Then, the blood goes to the valve of the lungs where it gets oxygenated. Lastly the blood that is oxygenated comes back into the heart from the left atrium. Lastly, it passes through the last valve called the left ventricle. At last, the oxygenated blood spreads around from the aorta to the rest of the body. And comes back.

Super use of scientific vocabulary

Impact: Book scrutiny and classroom observations show that children are increasingly using scientific vocabulary in both spoken and written work. Accuracy and consistency of use vary between classes, indicating that vocabulary development is improving but not yet fully embedded.



Displays and topic cover sheets showing key vocabulary for units



Vocabulary progressio document showing key vocabulary for each unit and vocabulary that is revistsed from year 3-6

Year 5		
Forces and Mechanisms Autumn	**Earth and Space Spring**	**Human Reproduction Spring**
air resistance, contact force, force meter, friction, fulcrum, gear, gravitational force, level, magnetism, mass, mechanism, newton, non-contact force, particle, pull/ push, streamline, surface area, water resistance, weight	axis, daytime, moon phases, geocentric model, gravitational force, heliocentric model, lunar, mass, matter, night time, orbit, planet, rotate, satellite, season, shadow, solar, universe	adolescent, ageing, amphibian, bird, birth, cell, development, fertilisation, fish, gestation, growth, hormone, infant, insect, juvenile, life cycle, lifespan, mammal, metamorphosis, offspring, puberty, reproduction, reptile, vertebrate
Life Processes Spring	**Properties and changes in materials Summer**	
adolescent, animal, bud, bulb, carpel, clay soil, dispersal, dissection, environment, fertile, fertilisation, filament, flower, food chain, germination, growth, life cycle, metamorphosis, nutrients, pollination, seed, sepal,	absorbent, chemical change, condense, dissolve, electrically conductive, evaporate, filtration, freeze, insoluble, insulator, irreversible change, magnetic, particle, physical change, reversible change, sieving, solubility, solute, solution	

Vocabulary that appears in multiple year groups and topics

Next steps:

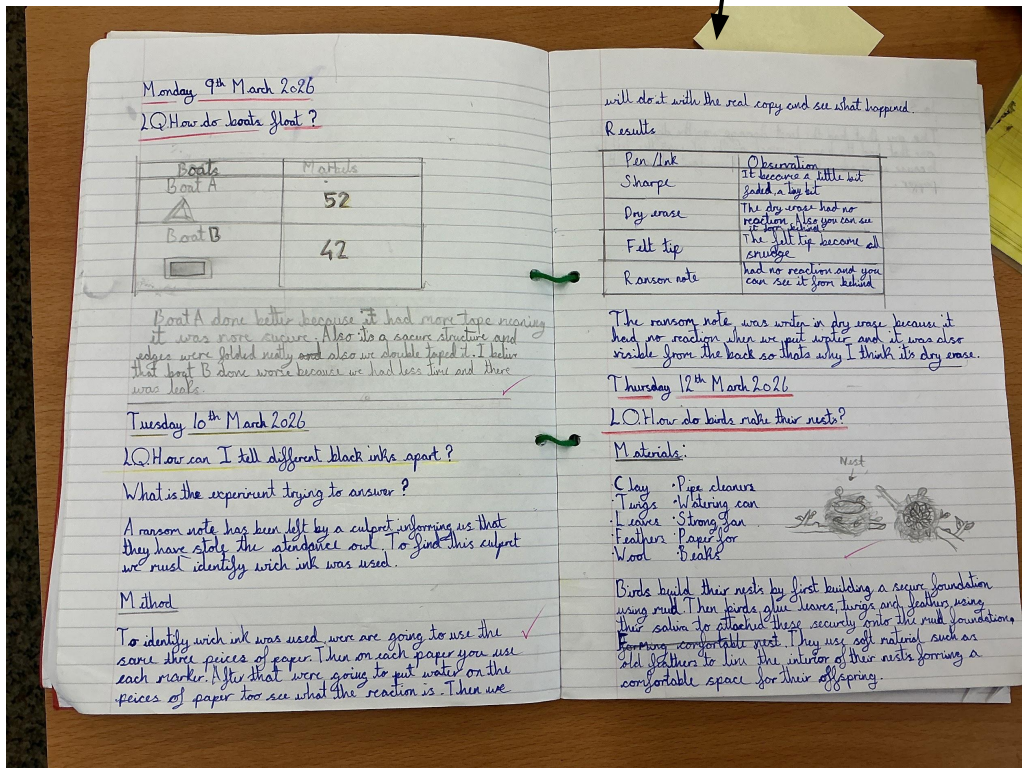
- Embed vocabulary progression cross year groups
- Monitor accuracy and consistency of use

TLB: Independence

Key need - Pupils enjoy practical work but often rely on teacher direction and show limited independence.

Progress: Resources are being made more accessible and teachers are beginning to provide opportunities for pupils to make choices within investigations..

Pupil work showing independent planning of investigation



Monday 9th March 2026

LQ How do boats float?

Boats	Marbles
Boat A	52
Boat B	42

Boat A done better because it had more tape securing it was more secure. Also its a secure structure and edges were folded neatly and also we double taped it. I believe that boat B done worse because we had less time and there was leaks.

Tuesday 10th March 2026

LQ How can I tell different black inks apart?

What is the experiment trying to answer?

A ransom note has been left by a culprit informing us that they have stole the attendance out. To find this culprit we must identify which ink was used.

Method

To identify which ink was used were are going to use the same three peices of paper. Then on each paper you use each marker. After that were going to put water on the peices of paper too see what the reaction is. Then we will do it with the real copy and see what happend.

Results

Pen \ Ink	Observation
Sharpie	It became a little bit faded a tiny bit
Dry erase	The dry erase had no reaction. Also you can see it was printed
Felt tip	The felt tip became all smudge
Ransom note	had no reaction and you can see it from behind

The ransom note was writen in dry erase because it had no reaction when we put water and it was also visible from the back so thats why I think its dry erase.

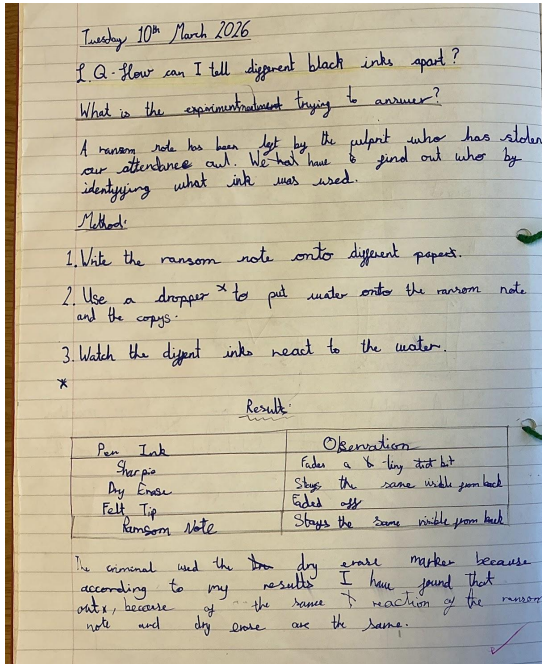
Thursday 12th March 2026

LQ How do birds make their nests?

Materials:

- Clay
- Twigs
- Leaves
- Feathers
- Wood
- Pipe cleaners
- Watering can
- Strong jar
- Paper for
- Beaks

Birds build their nests by first building a secure foundation using mud. Then birds glue leaves, twigs and feathers using their saliva to attached these securely onto the mud foundations forming comfortable nest. They use soft material such as old feathers to line the interior of their nests forming a comfortable space for their offspring.



Tuesday 10th March 2026

LQ - How can I tell different black inks apart?

What is the experiment trying to answer?

A ransom note has been left by the culprit who has stolen our attendance out. We had have to find out who by identifying what ink was used.

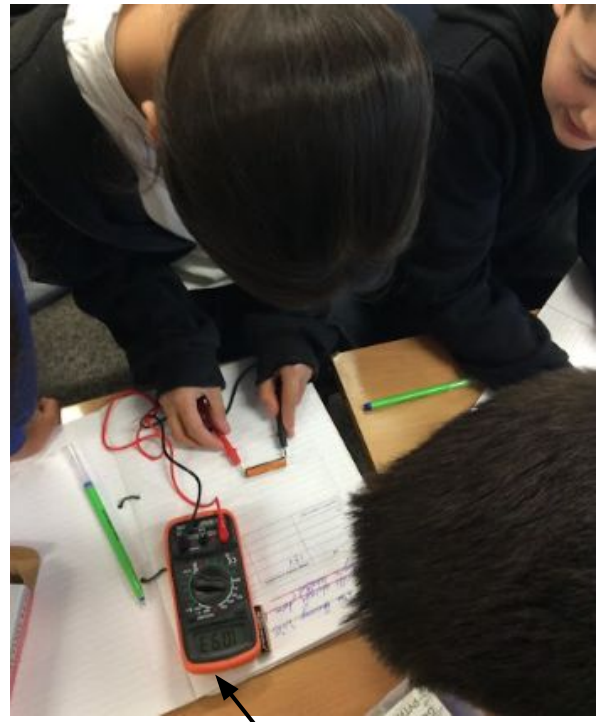
Method:

1. Write the ransom note onto different papers.
2. Use a dropper to put water onto the ransom note and the copys.
3. Watch the dipent inks react to the water.

Results

Pen Ink	Observation
Sharpie	Faded a bit tiny that bit
Dry Erase	Stays the same visible from back
Felt Tip	Faded off
Ransom Note	Stayes the same visible from back

The criminal used the dry erase marker because according to my results I have found that out, because of the same reaction of the ransom note and dry erase are the same.



Pupil's independently using resources in practical lessons

Impact: Observations show that children are beginning to select and use equipment with greater confidence during practical activities. However, independence varies across classes, suggesting that opportunities for pupil-led learning are increasing but not yet consistent.

Next steps:

- Increase opportunities for independent learning
- Monitor independence across classes

Science Lead: "How confident do you feel using equipment and resources in science?"

Pupil J (Year 4): "I feel very confident in using resources because we get taught and shown how to use them. I would like to use them more - I can remember using them before in small groups."

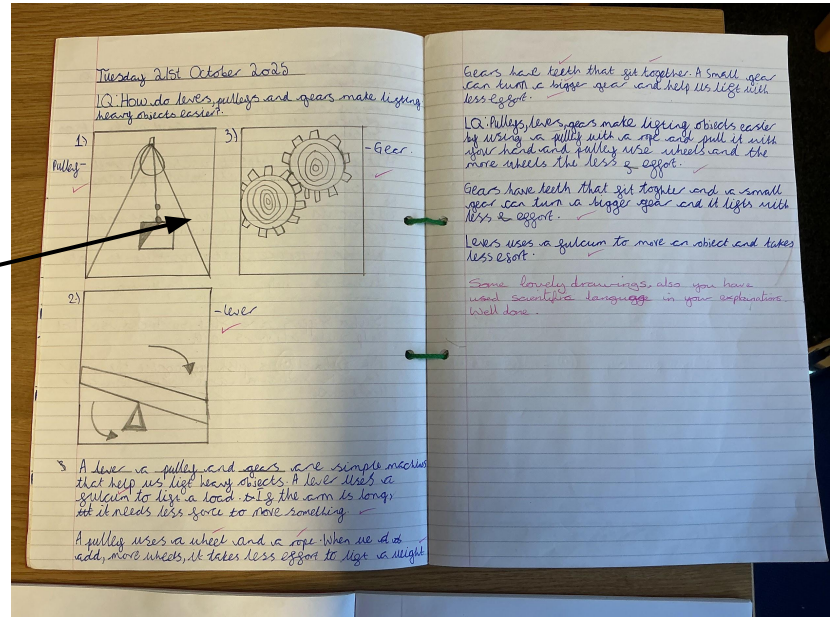
Pupil voice showing understanding and opinions on use of equipment

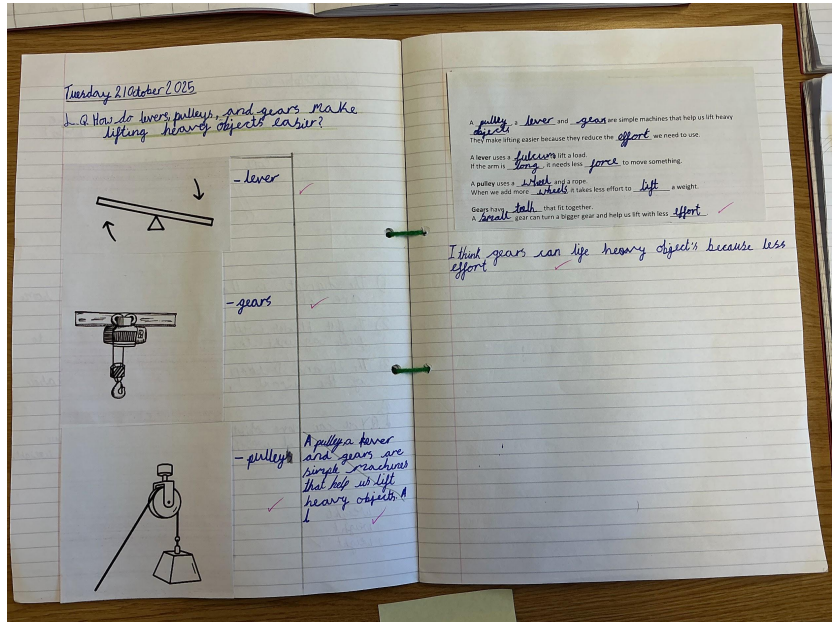
TLB: Adaptive teaching

Key need - Teaching is developing consistency in adaptations to pupil responses.

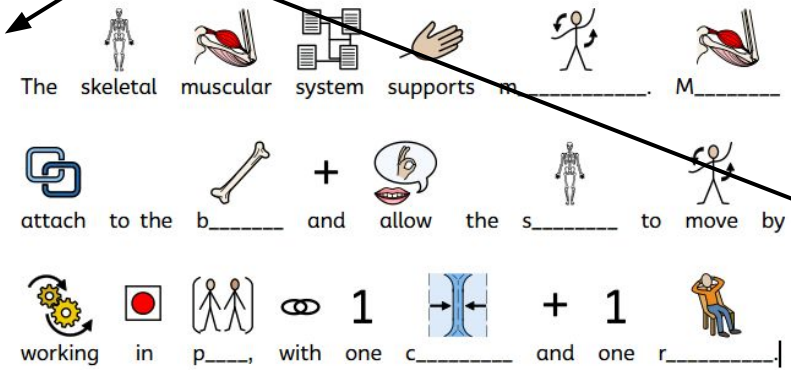
Progress: Teachers are beginning to become more confidence in adapting lessons more responsive using observations and questioning to guide science teaching.

Comparison of children's work using different adaptations within the same lesson





Resources used within lessons to support needs of learners



The skeletal muscular system supports m_____. M_____ attach the the b_____ and allow the s_____ to move by working in p____, with one c_____ and one r_____.

relaxing	movement	skeleton	contracting	bones	pairs	muscles

Adaptations - LA/SEND children to be given Bodily systems stem sentences to support their answers. HA children to compare two of the systems or create links between the ones that support the same or similar life processes that work together.

Planning incorporating adaptations to support and challenge

Impact: Monitoring shows that children are increasingly supported through responsive teaching, with teachers adapting explanations and tasks based on pupil understanding. This has led to improved engagement and reduced misconceptions in some classes.

Next steps:

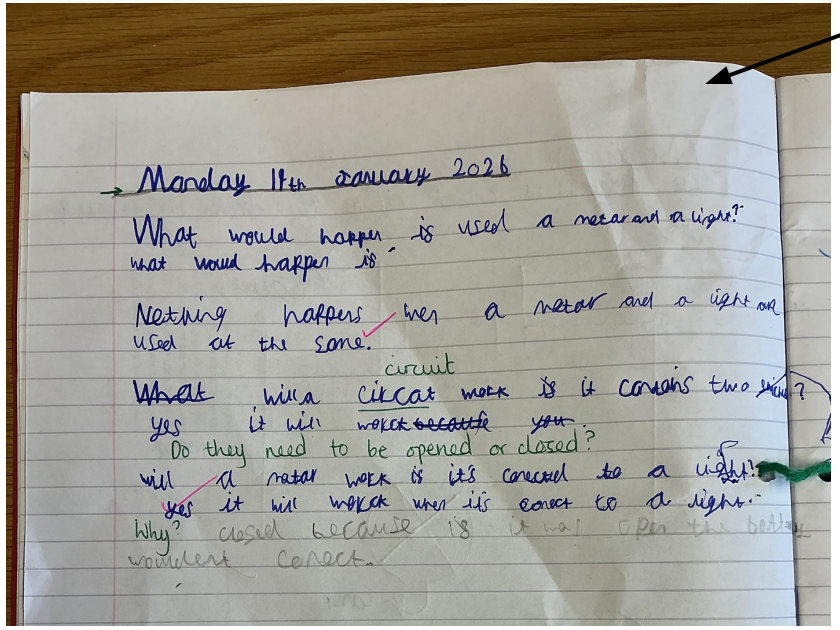
- Embed adaptive teaching strategies
- Monitor impact on pupil outcomes

TLC: Use of Assessment

Key need - Assessment is not consistently used to inform teaching

Progress: The subject leader has supported staff in developing assessment approaches, with SLT backing this through CPD.

Pupil work showing verbal feedback during lessons



Assessment tracking of specific core knowledge strands

+ Add Y6 Core knowledge Blood is a substance that carries oxygen, other nutrients and hormones around the body. It also carries carbon dioxide and other waste products s... more	97%	77%	1 lesson
+ Add Y6 Core knowledge Blood vessels are tubes inside the body. The three types of blood vessels are arteries, capillaries and veins. Arteries carry blood from the ... more	86%	76%	1 lesson
+ Add Y6 Core knowledge The heart is a muscular organ that pumps blood around the body through the blood vessels.	93%	85%	1 lesson
+ Add Y6 Core knowledge The heart, blood and blood vessels make up the circulatory system. The circulatory system moves blood around the body.	90%	83%	1 lesson

Impact: Lesson observations and book scrutiny show that children now receive more immediate feedback during lessons, supporting improved understanding. However, the use of assessment to inform future planning is still developing, limiting its full impact on progress.

Planning incorporating assessment of scientific language to inform subsequent lessons

Explain to the children that they will learn scientific vocabulary that they will use during the project. Provide pairs of children with the Scientific vocabulary sorting cards. Ask them to match the words and definitions, using a dictionary if necessary. Use the Scientific vocabulary answer sheet to help the children mark their work, addressing any misconceptions. At the end of the session, ask the children to quiz each other in pairs using the terms and definitions.

Assessment opportunities of enquiry types thorough a unit

Comparative & Fair Testing	Identifying, Classifying & Grouping	Observing over Time	Pattern Seeking	Research
How does age affect a humans reaction time? Who grows the fastest girls or boys?	Can you identify all the stages in the human life cycle and put it on a timeline?	How does the mass of a baby change over time?	Is there a relationship between a mammal's size and its gestation period?	What are the longest and shortest gestation periods in mammals? Why do people get grey/white hair when they get older?

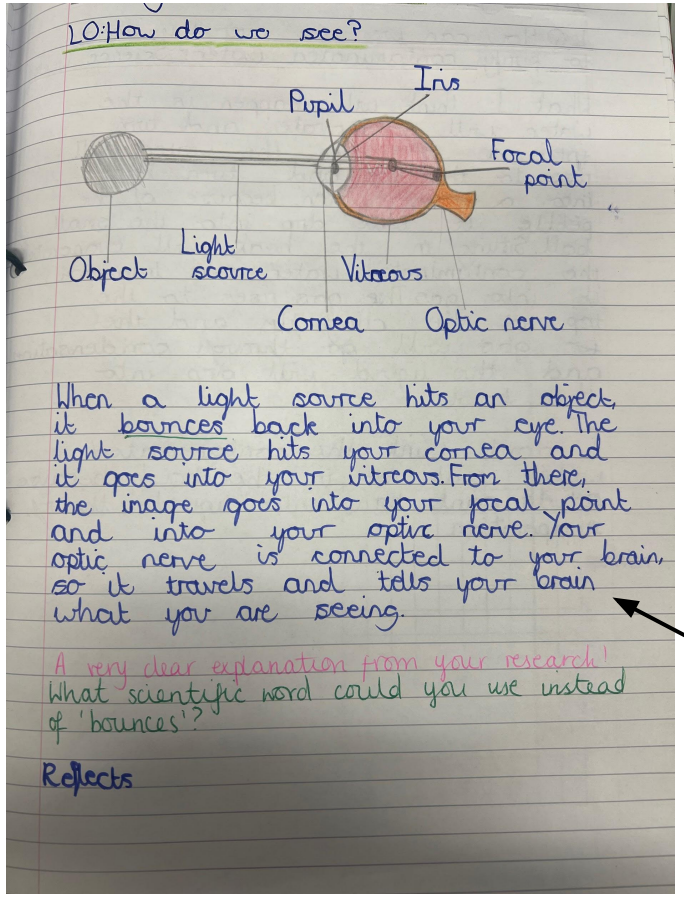
Next steps:

- Embed assessment into planning
- Monitor consistency across classes

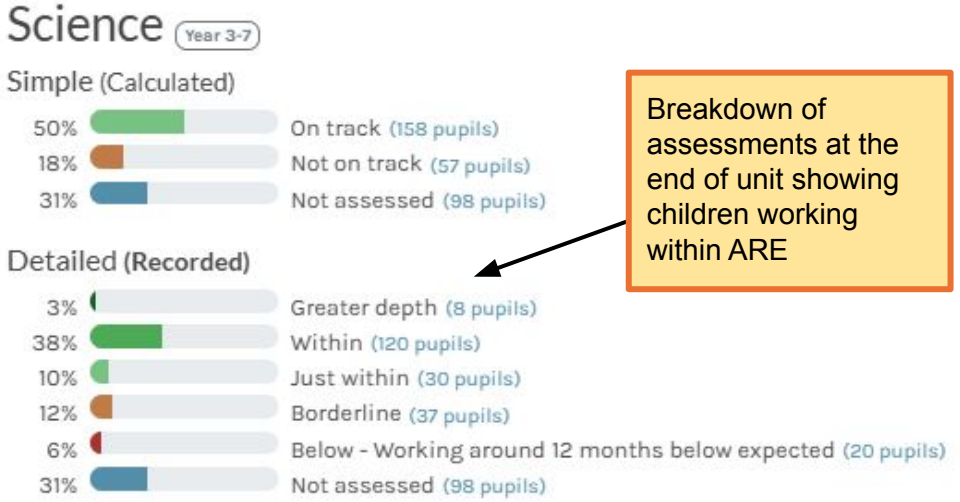
TLC: Tracking and Feedback

Key need - Feedback to both disciplinary and substantive knowledge is variable and tracking is not fully systematic.

Progress: Feedback is becoming more consistent and initial systems for tracking understanding are developing.



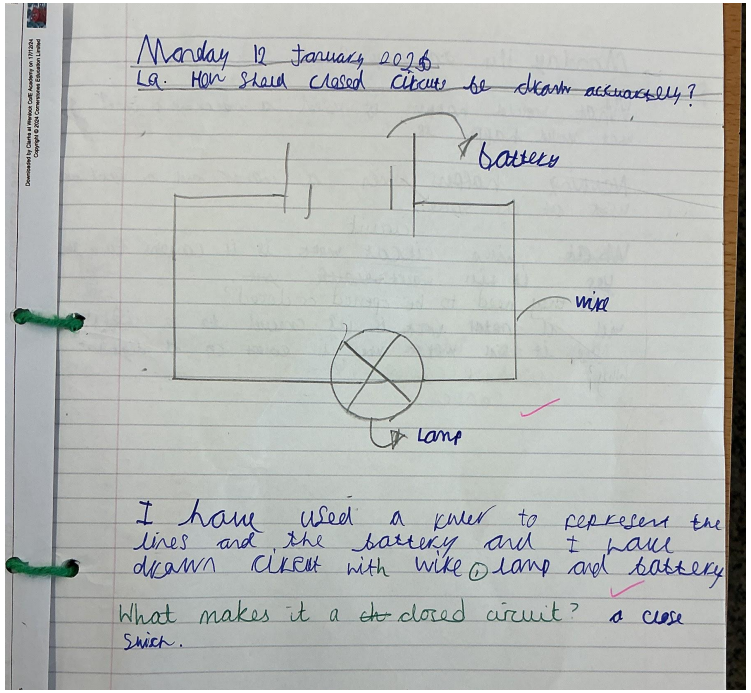
Pupil work showing response to feedback to deepen learning



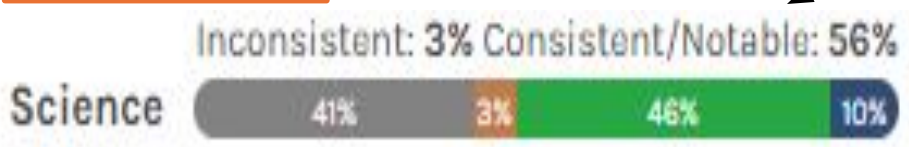
Breakdown of assessments at the end of unit showing children working within ARE

Impact: Book scrutiny shows that children are beginning to respond to feedback and make improvements to their work.Tracking of misconceptions is not yet consistent, indicating that while feedback is improving, its long-term impact is still developing.

Pupil work showing response to feedback to deepen learning



Assessment data showing progress of Year 3-6 over a period of a year



Next steps:

- Develop consistent tracking systems
- Monitor progress over time.