



Before
PSQM

After
PSQM

Our Vision

All children will become scientifically literate pupils of the future, through our hands-on, minds-on, inquiry based approach to science which stimulates children's natural curiosity to find out about the world around them.



FS

KS1

KS2

Whole
School

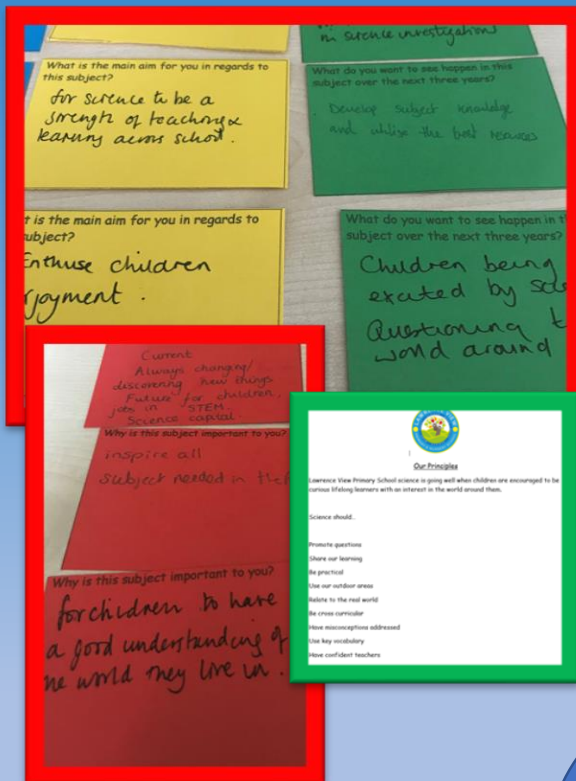
Community

SL1: There is a clear vision for the teaching and learning of science

Action - Staff meeting to discuss and develop a clear vision for science at LVPS.
Ask teachers to contribute to how they want science teaching and learning to look at LVPS.

Action - Ask the children what they would like science teaching and learning to look like at LVPS.

Action - Monitoring during lesson observations, learning walks and books scrutinise that our science principles are upheld and all staff are showing they understand the clear vision.



All staff contributed and discussed the vision for science at LVPS

Is there anything else you would like school to offer in science?

- Science trips
- To use the new circuit equipment
- To investigate more outside
- Science day
- To find out things in the science lab
- Be a scientist

It was clear children from across the school wanted to 'see' and 'do' more science in school.

Is there anything else you would like school to offer in science?

- To work in the science lab
- To get messy and make slime
- Science club
- Another science day!
- To do science everyday

Y6 investigating hearts.



Next Steps - Find ways to 'share of learning' more. Hopefully this can happen through out long anticipated science fair and science clubs.

Impact – Staff know what science is at LVPS. Children are now aware of the principles and they are displayed around school.

'I know what is expected of science in school now. I use the vision when planning so I can keep in line with the whole school' - Y4 teacher

Impact – Children have been able to access investigations through teachers improved planning and have been given a wider range of resources and opportunities in science.

Hello Sophie,
On the 11th September I visited school to witness a science lesson with the year 6 class and Mr Blackburn. The biology lesson covered the circulatory system and in particular the dissection of Lamb's hearts. The lesson took place in the new science lab and before I discuss the lesson may I please say what a great addition to the school this lab will be, a great place for our pupils to learn and the wall art is breathtaking. The lesson started with the pupils being given a short time to discuss amongst themselves what they knew about hearts, this was then followed by a short question and answer session with Mr Blackburn, pupils seemed very knowledgeable about the subject from the start. The hearts were then handed out and the pupils were asked to compare the hearts and their parts to the picture projected on the screen. This was then followed by the dissecting of the hearts, which the children enjoyed and seemed to gain a lot of knowledge from. This was then followed up with another short question and answer session. Overall this was a very enjoyable lesson and I look forward to seeing more lessons taking place in the lab.
Thank you,

Governors report

Sunflower deliveries for all children in lockdown



Book look record

Lawrence View Primary and Nursery School 14.11.2019
Monitoring focus –
Overall comments/notes
WWW:
Linking to vision and principles of science
Presentation
Knowledge based – curiosity!
Coverage and activities match objectives
Range of investigations – hands on!
EBI:
Make sure all lessons have a LO if work is in books
Pre and Post Assessments must be in books (please date when post assessment is completed)
Revisit knowledge
Keep ensuring children respond to marking, giving full explanations where needed to move learning on. E.g. How do you know? How did you work this out? Tell me more what did you notice? I know this because...
Action Points

Next steps – Ensuring the principles are regularly referred to in class and assemblies to keep the profile and expectation of all in science current.

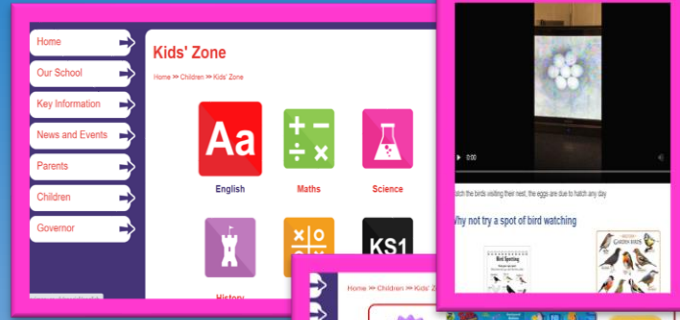
Impact – Sharing our vision and principles kept parents informed of our goals during lockdown and supported continuing 'hands-on' science at home.

SL2: There is a shared understanding of the importance and value of science

Action - Ask all classrooms to display relevant science words for their topic at all times.



Action - Upload, update and review the school website for recent and relevant science happening in school or around us.



Action - Arrange a science day to launch the new science lab



Action - Have a scientist of the term award for each class



Displays now key vocabulary and knowledge. Most are also interactive.

Next steps – Continue to monitor displays

Science is regularly updated with information, games, photos and videos. It has been especially important keeping children up to date during lockdowns with videos like the 'bird cam'.

Impact – Children, parents and the wider community are able to access up to date news in science at LVPS. The interactive resources kept science fun during lockdown as well as inspiring ideas for home learning,



Before PSQM we didn't have any relevant information on the website – only the science curriculum offer.



The whole school took part in science day with a variety of visitors such as Professor Bubble, White post farm reptiles, Lego robotics and pets at home.

We were in the local newspaper !



Impact – This science day started the buzz around science and the science lab. The children still talk about the day and ask for another one regularly.

Some of the scientist of the term recipients! We also invited children to apply for a science ambassador role in which they receive a pin to wear on their unif



Impact – The awards and ambassador roles have given more value and importance to science at LVPS. Children are keen to receive an award and want to be an ambassador.

Next steps – Continue to keep website up to date. Launch Science club and science fair when restrictions are lifted.

Impact – Display boards are clear and up to date. Children use these regularly in lessons and most children commented on them during learning walks.

SL3: There are appropriate and active goals for developing science

Action - Use the budget to purchase high quality resources. Actions to be dealt with promptly, impact to be monitored, changes made where necessary.

Action - Keep governors up to date with reports and invite regularly to observe and take part in science activities in and out of school.

Action - Make sure actions in SIP are a priority during the PSQM



Continuous CPD in subject knowledge was a key point in the SIP. This online tool has been extremely valuable for its home access during lockdowns and staff feeling in control of their own learning needs.

	Using this online tool - regular information can either complete or design and complete depending on ability.	The whole cycle
Lists	Simple tool for recording information.	List the different things in your house that use electricity
Concept Cartoons	Great to begin discussions but can also get children to create their own concept cartoon including deliberate mistakes	Three children are discussing their snowman. One of them has a hat and gloves on. What three statements might these children make about how quick this snowman will melt?
Concept maps	A representative of the links between various concepts. The concepts are shown in bubbles; children make links between them using arrows and words	Can you draw a concept map about forces?
Deliberate Mistakes	Deliberate mistakes in texts or investigations allow children to demonstrate their understanding in correcting the errors - especially if they are mistakes made by the teacher!	Give children the teacher's results and conclusion to "check".
Diary Entry	Particularly useful when discussing	Write a diary entry by Sir

'I really appreciate being asked to see the wonderful science happening at Lawrence View. I particularly enjoyed today with the younger children learning about animals and pets.' Chair of governors.



Before PSQM we had limited resources that took the space of one small shelf.

Staff Development: (Autumn)
Staff meetings -
Vision and Principles of Science at LVPS - Led by Sophie
Enquiry types - What are they? - Led by Sophie
Planning Science - Led by Sophie
The subject leader has attended a Cluster meeting which led to a discussion on provision in science for children with SEND.
Staff are to access INSET training provided by TT Education on Science across the curriculum.
Online CPD - Reach out. Staff can access at home and return for subject knowledge as and when needed.
Ofsted Subject leader training |

Monitoring activity: Learning walk Science Date of report: 19/01/19 Monitoring by: Sophie Stevenson (SL) and Scott Upton (Governor Science) Report by: Sophie Stevenson Context/Focus: Observing science in school	
Key strengths	Needs attention
<p>Science</p> <ul style="list-style-type: none">Pupil's outcomes match the learning objectives and SC intentions.Tasks observed were engaging - Snowball to find out what the children already knew and discussed their thinking.Use of science lab and resourcesAll children were on task and engaged with their learning.Children were making predictions which prompted thoughts from other children.Lessons were well resourcedIn one lesson, children were given challenges to choose from (think of your own food chain, a template to help the children) <p>S25 for most lessons Varied activities - photos, diagrams, labelling, 'missions', thought showers, speech bubbles, and post it investigations. These were recorded in a variety of ways and some displayed around the room.</p>	<p>Science</p> <ul style="list-style-type: none">Increase investigations that are led by children's questions when applicableChildren to be in control of investigations when possible. Set expectations and let children explore.Pre/Post assessments logged in books <p>SS will speak to staff individually.</p>

Resources have been organised so that staff and children can find what they need quickly and easily. All resources are class amounts so all children get to use them.

'It really helps knowing that whatever I have planned, we have the resources. We have never had this before so it feels lovely to enjoy this with the children and for them to be excited to use different equipment' - Y5 teacher

Governors are updated regularly on latest plans for staff development, new resource purchases and assessment.

Governor for science taking part in a learning walk observing science in the whole school.

Impact - Children and staff are able to use a wide range of resources which makes lessons memorable and engaging.

Next steps - Continue to audit and replace/mend resources when needed.

Impact - Keeping governors involved has meant that any changes and developments have been supported.

'Science is a strength at Lawrence View. Staff have had an incredible amount of training and the SL ensures that science is effective' - EIA

Many resources have been handed out during staff meetings with ideas on teaching strategies and presenting work. Teachers have been great at sharing ideas and helping each other.

Impact - SL and SLT have worked together to ensure the SIP actions are completed. Staff feel an increased confidence in subject knowledge at the SL has been given opportunities and training to ensure effective leadership.

Next steps -Continue to use pupil and teacher voice to decide on next steps in science with SLT

Continue regular links with governors and feedback and updates are given

SL4: There is a commitment to the professional development of subject leadership in science

Action - Research, decide and book onto relevant course specifically tailored to our schools needs – (staff subject knowledge, SL increasing subject knowledge, latest research)

Action -Staff meeting to show and inform staff on other online CPD units they can complete

Action - Regularly send latest research, pedagogical ideas and profession development opportunities to all staff.

Action- Join ASE – Disseminate information to staff



Another tool used was Focus Education which we use at school for our curriculum and leadership.



PSQM has given me the confidence and tools to change science at LVPS. It has changed the way I lead science.

Our EIA inspection highlighted the impact of CPD of the SL and staff and the impact it has had on teaching and learning in school.

‘I find the books Sophie has purchased so useful. I use them all of the time to help with ideas when I’m planning. I like to try new things so it’s great to have the latest research provided to use than spending hours trying to find it.’ – Y2 Teacher

Joining the ASE has given me lots of advice and is a valued resources not just for myself, but staff too.

Next steps – Continue to develop TAPS in school to streamline science moderation and give clarity. Continue to engage with CPD and disseminate to staff. To continue using SL time to manage science and its development.

year. Good practice seen in science, English, maths, geography and history will provide an effective model to further develop the skills of others to lead their foundation subject.

Evidence and evaluation of curriculum implementation

Discussions with the science and history/geography leads shows that subject leadership in these areas has strengthened. They can clearly articulate the barriers to learning, the curriculum intent. They can evidence the CPD staff have received which has had a positive impact on improving staff skills and knowledge, and this can be seen in learning walks where teachers are more confident in teaching science.

Science and history/geography leads are clear about the learning that is happening across school and can clearly articulate links between areas and explain coverage of knowledge and skills.

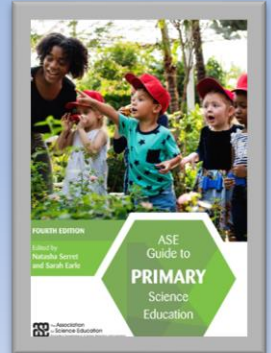
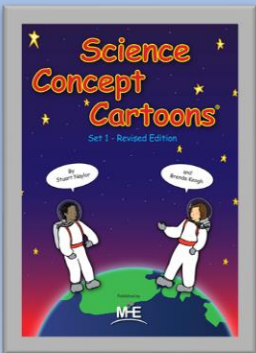
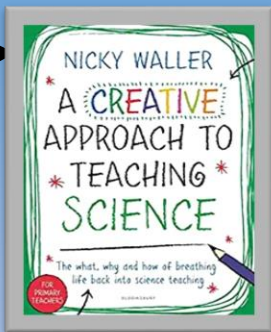
Subject leader action Plans are in place and have been quality assured by senior leaders and these are clearly linked to issues identified in monitoring. They are focused on the correct priorities and include

identified CPD needs of staff. Science, geography and history subject leads are clear about next steps in subject development. Subject leaders and other staff are trained well.

Monitoring by science, maths, English and geography/history subject leads is thorough and being used well to identify next steps. Curriculum maps that are in place, provide clarity around the progression of skills and the quality of teaching, particularly in science, has improved.

Key strengths identified in recent learning walks show that teacher subject knowledge was strong in science, which is a strength of the school and is an area most staff feel confident in. Teachers work hard to make learning fun and memorable in science, which is enhanced by the well-resourced science laboratory. The curriculum fosters scientific thought and skills. Where teaching is less than good, subject leaders have worked with staff offering advice and support and improvements in teaching have been seen.

Impact – Staff have been able to access the latest research and pedagogical approaches in science which has ensured best practice. Purchasing and sharing high quality texts has made them accessible and useful.



SL5: There are monitoring processes to inform the development of science teaching and learning

Action - Decide with SLT on the monitoring activities that are relevant and appropriate to how we work at LVPS

Teacher Voice – Science – Summer 2 2019

How do you feel about science?

I wouldn't say science is my strong point. I am frightened I'll tell the children something that is wrong or I won't know the answer.

I don't really know what I'm doing. I find a lesson plan and stick to the lesson plan.

Not great.

Unsure about somethings like rocks!

Teacher voice

Teacher Voice – Science – Spring 1 2020

How do you feel about science?

I know what I'm teaching now. If I don't know something, I'll ask.

I love teaching science especially using Explorify, the children love it!

On a scale, I'd say about an 8. There is always something I have to look up on Reach Out to refresh.

I would say I'm confident now. I know what I'm teaching and I know what I'm talking about.

Action -Have a rigorous and regular approach to monitoring, reflecting and responding to findings with actions to implement

EIA report on monitoring and impact

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Action - Act on findings from pupil voice feedback. Ensure children can see and are aware of the changes made or celebrated due to their input.

Action- Feedback to staff of strengths and developments needed to ensure good communication and expectations

Pupil voice

Is there anything else you would like school to offer in science?

- Science trips
- To use the new circuit equipment
- To investigate more outside
- Science day
- To find out things in the science lab
- Be a scientist



Enquiry skills tracker

RQT supported

Observing over time	Pattern seeking	Identifying, classifying and grouping	Fair and comparative testing	Research using secondary sources	Analysing and presenting data

Science in bubbles monitored



'I enjoy it when Sophie monitors science. She makes it informative yet informal and I always find something out or learn something new to do or use when we have had a chat about what she has seen in my class'
– RQT Y1

Children wanted to investigate more outside and in the science lab

Is there anything else you would like school to offer in science?

- To work in the science lab
- To get messy and make slime
- Science club
- Another science day!
- To do science everyday



Impact – Monitoring has identified teacher and pupils needs and thoughts which we have put into action. Regular learning walks, book looks and planning checks are completed and this enables the SL to find areas for development and act upon them. Staff feel supported and improvements in teaching and learning have been identified.

Next steps – Ensure pupil voice goes ahead on teams until restrictions end and then have half termly meetings. Continue rigorous monitoring and make strategies and plans for development when needed.

Develop TAPs to ensure monitoring of work across the school is cohesive.

T1: There is engagement with professional development to improve science teaching and learning

Action - Share ideas, websites (e.g. ASE), and challenges/competitions, on-line resources with teachers via email or staff meetings to help develop subject knowledge and inspire ideas.

Action - Feedback recent lesson monitoring and discuss area for development

Action - Make use of the online CPD – PSTT CPD modules online/ Reach out CPD from Imperial College

Action - SL to lead staff meeting linked to key findings from monitoring activities

Hi All

Please could everyone have a look at the link below and use the training to your needs. The training is online, free and run by STEM.

It's a great way to refresh and get some new ideas for practical science teaching.

It does recommend 3 hours per week for three weeks in total. I know some people have extra commitments at the moment but I would really appreciate it if you could get out of this what you need, when you can.

Thank you!

Sophie

Email correspondence for online training/development and links to activities.

Hi All

I have found some online science CPD which everyone can access for free.

It breaks each section down into topics and not only gives the CPD via images, scripts and videos, it also has resources that are free to download. The key part of this site I would like you to all have a go at is the 'working scientifically' element which is where main improvements need to be made.

When you have completed this section if you let me know what you thought and if it helped at in the next few weeks.

Seems a great resource to access for free!

Also, this is not necessarily aimed towards FS but it may have some useful resources for you to use.

Here are the links - <http://www.reachoutcpd.com/>

I have found these for forces! i hope it helps :)

<https://explorify.wellcome.ac.uk/en/activities>



Activities - Explorify

Awesome, bite-size prompts for discussion and investigation! Explorify's high-quality image, video and hands-on activities are sure to spark curiosity and get your class thinking like scientists.

explorify.wellcome.ac.uk



Subject Leader Recording Form					
Subject	Science	Subject leader	Sophie Stevenson	Date	22/1/20
Lesson observation	✓	Work scrutiny		Outcomes / Progress	
Curriculum		Resources		Discussion	✓
Year group(s)	5				
Focus	Dissolving sugar and influencing the speed of dissolving in a fair test				
Commentary	<p>Lesson is informed by the curriculum plan - Explaining how a material dissolves to form a solution, setting up a fair test, measuring, recording and presenting data, explaining why something has happened, understanding variables, making predictions</p> <p>Lesson is clearly linked to what happened in the previous lesson during which pupils had undertaken some planning to carry out the fair test, suggesting that the CM has a clear view of what she wants to achieve over time</p> <p>Pupils are being encouraged to use their existing scientific knowledge and skills to devise and carry out a new investigation - good</p> <p>All resources are in place with the result that minimal learning time is lost</p> <p>Excellent use of video to explain the nature of a fair test (or why what was shown wasn't a fair test)</p> <p>Pupils decide on appropriate approaches, show an understanding of the concept of a fair test, make predictions, draw conclusions and are encouraged to look for patterns. They are operating like scientists - good</p> <p>CM is a confident teacher of science, has good subject knowledge and provides very clear explanations. She consistently encourages the pupils to think like scientists - the importance of the fair test, the control of variables, accuracy of measurement, careful observation and discussion of conclusions</p> <p>The initial exposition was long but justified in order to maximise the pupils' ability to work independently in the investigation part of the lesson. Despite the amount of teacher talk at the beginning, there was no obvious loss of concentration, suggesting pupils are well motivated and want to learn</p> <p>Good use of open-ended questioning to make the pupils think - "How could you measure the amount of sugar added?" "Why do you think I might think that this isn't a fair test?"</p> <p>Pupils work well collaboratively and are encouraged to challenge each other's thinking because this is what scientists do.</p>				
Strengths	<ul style="list-style-type: none"> Very good teacher subject knowledge Consistent use of scientific vocabulary Lesson was linked to the curriculum plan Pupils encouraged to plan and then build on their previous knowledge/skills Good level of intellectual challenge Pupils encouraged to work collaboratively, to form a hypothesis, to discuss and to think like scientists Resources and equipment planned and readily available Positive climate for learning based on mutual respect 				
Possible areas for development	<p>Try other recording methods for SEND such as templates, scribing, recording or photographs</p>				
Good practice which might be shared	<p>Next steps, including training needs</p>				
Children asking their own questions	<p>Check teaching strategies PPT from staff meeting for other teaching strategies</p>				

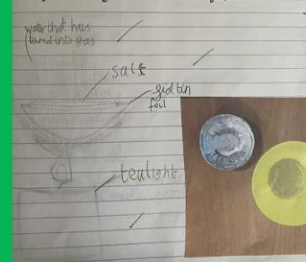
'Sophie always sends me emails or leaves post-its on my desk if I'm struggling for an idea or something new she has seen to try like 'odd one out' on Explorify - Y4 Teacher

What we did
(I think we made a salt solution (salty water)).

2A glr: We put some salt solution in a glass container and heated solution over a Bunsen burner.

3A glr: a few minutes the water started to bubble and evaporate.

4A glr: we were left with some salt crystals.

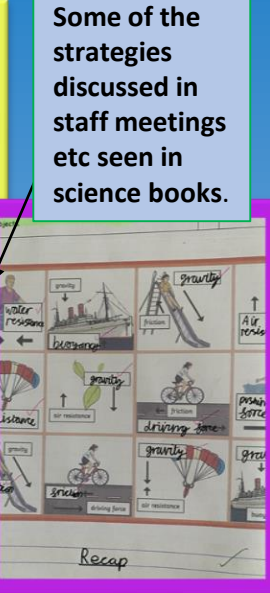
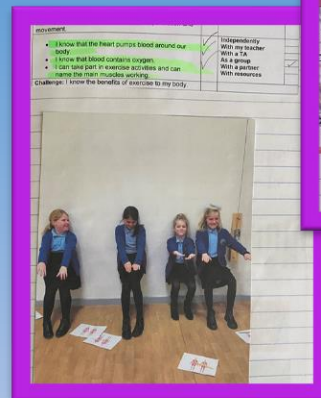
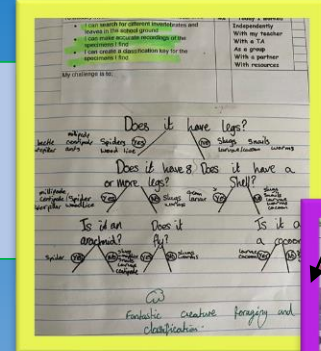


Teaching Strategies - Science	
Question based enquiry	
Teaching specific skills	
Higher order questioning	
Sorting and grouping strategies e.g. Venn Diagrams	
Active Assessment	
Computing - Presentation, filming	
Vocab games - bundles of three - why have you bundled those three words together	
Graphic organiser	
Hands - on	
Play based learning	
Drama and role play	

A lesson observation in Y5 - suggested another teaching strategy to help children with SEND. Next investigation shows child has understood by teaching using specific skills and presenting work in a more manageable way.

Science observations are something I look forward to. Now I have all this information and resources I want to know how else I can use it and Sophie always has suggestions - Y5 Teacher

Teaching strategies shared at staff meetings



Some of the strategies discussed in staff meetings etc seen in science books.

Impact - Staff are confident and happy with the monitoring and support they get from this.

Next steps - Continue to support and share ideas about best practice and provide feedback for development that is useful and helpful.

Impact - Engaging in development of teaching and learning is giving children a better learning experience that helps all children and learning preferences.

T2: There is a range of effective strategies for teaching and learning science which challenge and support the learning needs of all children.

Action - Plan a staff meeting to discuss creative approaches to science teaching that have been used before or seen.

Action - Share in the half termly staff meeting, new games, investigations etc with each other.

Action - SL to introduce a variety of teaching/learning approaches at staff meetings. Invite all teaching staff to try something new each week and feedback with evidence at the next science meeting.

Sharing idea's is a great way of finding out and trying new things – Y2 Teacher

Putting strategies together and sharing ideas for the needs of all our children has made teaching and learning varied, accessible and fun.

Impact – We now have a working list of ideas and strategies the SL and staff have used and/or found to challenge and support the learning needs of all children.

Sharing ideas together makes planning much less stressful and reminds me of things I haven't done in a while – Y4 Teacher

Drama - Role play



Outdoor learning



Presenting



Using pictures to label

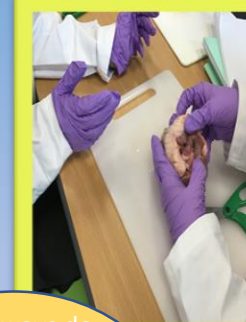


I love it when my group gets to think of our own investigations and we can choose what to do and what to use. Then we tell everyone else what we found out! – Y5 Child

Graphic organiser



Hands on investigations



Post-it sorting



Vocabulary games



Children enjoyed using the 'At home science' experiments shared by a member of staff.



Next steps – Continue to bank and explore new teaching strategies and continue to change these to the needs of our children. Try new strategies regularly and share with colleagues. Continue to find new ways of working to engage online learning.

We always do something different in science, it's like exploring with our hands, eyes and other things – Y3 child

Impact - Children have been able to access the curriculum through different teaching styles which has meant all children have been challenged and supported.

I like using the equipment and I like it when we move around and find things – Y1 Child

T3: There is range of up-to-date, quality resources for teaching and learning science which are used regularly and safely

Action - Carry out resource audit. Label equipment and ensure it is easily accessible for teachers and children.



Having bought in a wider range of equipment, science ambassadors have been made responsible for the resources and ensure that all classes can easily access resources.

Action -Consult with teachers to create list of new resources needed.

Hi All
I really need your input into the **science** resources we need. These are the areas in particular I'm looking for:
development of subject knowledge e.g. electricity, forces;
development of thinking and working scientifically (scientific enquiry);
use of the outdoors in **science**;
creativity in **science**;
application of **science**;
links with other areas of the curriculum e.g. computing, mathematics.
If you could have a think over the holiday and pop a few ideas over to me on an email, it would be great!
Sophie 😊

Emails were sent asking staff if there was anything they thought would be useful for their year group.

Hi Sophie
Hi Sophie
In foundation we could really do with some good magnifying glasses and insect collecting pots - like pooters, anything else for collecting or looking at insects would be good. At the butterfly park one a man used a sweep net which he swished around long grass and then tipped the contents onto a white sheet for use to look at. This might be useful for outdoor sessions at school if we have areas of long grass - we could also use it at Colliers wood.
Thanks Jane

Action - Consult with Head teacher over budget

Our resources have been purchased through priority budgeting. Science resources were a clearly needed so we made it happen. Science was the priority. The resources have changed teaching and learning significantly –Head teacher

Action - Ensure CLEAPSS newsletter is available to all staff in staffroom

Action -Show staff the new equipment and protocols when using equipment

Exciting new resources including a school bird nest cameras to use in the school Woodland, we saw birds hatch during lockdown!



Action -Source out 'free' resources (including on-line) and share with staff

Resources:
Horseshoe magnets, Bar magnets, wands and marbles
Magnetic chips
Mixed metals

Planning shows a wider range of resources being used.

Being able to have the time in staff meetings to really look at and use the new resources inspires me to find different ways of using them –Y6 Teacher

Resources are organised to ensure easy access and resources are logged in/out and any repairs or replacement s are logged.

CLEAPSS is always available in the staffroom for access to the latest safety information. This has been particularly important during restrictions due to COVID19. SL made sure these were distributed online.



We stay safe when using equipment by listening to our teacher and not using it until we know how – Y3 child

Impact – Having access to high quality resources ensures that all children can learn and have memorable experiences and opportunities.



All classes have books related to their topic in science and also get to choose books for their interests.

Next steps – Audit resources regularly
Replace and mend resources
Purchase new resources when need arises

L1: There is a shared understanding of the purpose and process of science enquiry

Action - Staff meeting -
Introducing/reviving science enquiry types

Shared in staff meeting

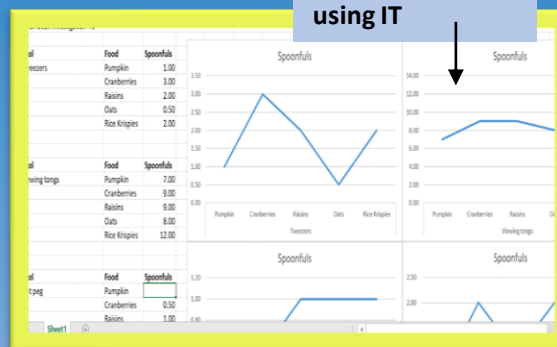
Observing over time	Pattern seeking	Identifying, classifying and grouping	Fair and comparative testing	Research using secondary sources	Analysing and presenting data

Inspired by a tip from PSQM training, a document was made to log skills that are used unintentionally in lessons which show the breadth of skills used over time. It also indicates any gaps in skills that need to be covered.

Action -INSET day – defining science enquiry types and introducing investigation strategies– supporting staff in matching science question to enquiry types

Action - Pupil voice – What do our children investigate currently? How can we improve science enquiry?

Analysing and interpreting data using IT



I enjoy when we come back to questions that we asked at the start of a new topic and I now know the answer – Y6 Child

Action -Conduct a learning walk –
Specifically to look for investigations, use of enquiry types and children asking scientific questions

Monitoring of science, maths, English and geography/history subject leads to thorough and being used well to identify next steps. Curriculum maps that are in place, provide clarity around the progression of skills and the quality of teaching, particularly in science, has improved.

Feedback from EIA after mock 'deep dive'

Enquiry type	Enquiry 1	Enquiry 2	Enquiry 3	Enquiry 4	Enquiry 5	Enquiry 6
Observing over time	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)
Pattern seeking	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)
Identifying, classifying and grouping	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)
Fair and comparative testing	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)
Research using secondary sources	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)
Analysing and presenting data	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)	Observe from a distance and record what you see (e.g. a plant growing)

SL created a enquiry skills progression document to help with planning. This is for reference it is not prescribed as the 'only' skills that can be used. It is encouraged to use skills with children when it is appropriate and they are able to.

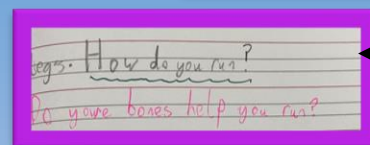
It's great to know I'm providing opportunities to use all the enquiry skills and I know what they are! – Y3 Teacher

Impact – Teachers are making sure they cover the breadth of enquiry skills for all children at the point of planning.



Impact –Children are given opportunities to ask questions, plan and investigate. This has helped children to remember by being hands-on which is part of our principles. It has also ensured that children remember 'doing' which in turn, helps them to retain knowledge.

Questions for written down and expanded are given to teachers



I love investigating! – Y2 Child

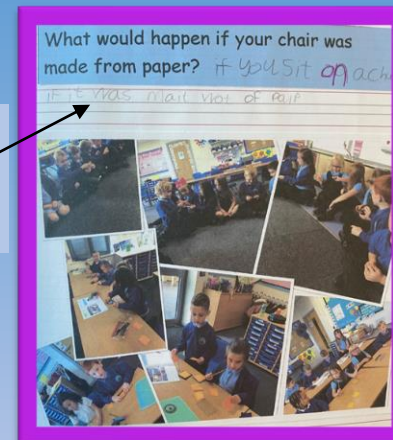
Developing independence in carrying out investigations.

Research

Red blood cells
Red blood cells are round with a bumpy outside. They carry fresh oxygen around the body - it is very important to your health. Hemoglobin is the protein inside red blood cells. It carries oxygen and red blood cells remove carbon dioxide from your body transporting it to your lungs to exhale.

White blood cells
White blood cells (WBCs), also called leukocytes or leucocytes, are the cells of the immune system that are involved in protecting the body against infectious diseases. All white blood cells are produced from multipotent cells in the bone marrow. All white blood cells have a nucleus, which distinguishes them from other blood cells.

Children questions being investigated



Children are using a wider range of equipment for things like fair testing – Y2 Teacher



Next steps – Ensure children continue to ask questions and investigate through monitoring. Ensure opportunities are given for scientific enquiry outside the class room.

L2: There is a shared understanding of the purposes of science assessment and current best practice

It's fun when we can tell our friends what they did well and how to get better next time- Y5 Child

Action - Explore different models of best practice surrounding science assessment

Action - Staff meeting – Explain and set non negotiables about science assessment

Action - Meet with SLT to discuss needs of EaZMAG and expectations of use

Formative

Summative

Pre/Post assessments are something we do throughout all subjects. During the PSQM year the post assessments show us that children have retained more information away from the point of teaching.

Impact – Assessment of children has shown that retention of knowledge is far greater and children are applying knowledge in future learning.

Knowledge and skills documents have put together using PLAN by the SL. Teachers know what came before and next.

Continuing questioning which prompts feedback

Concept cartoons now used widely for formative assessment

The staff meeting gave me a chance to share new ideas for assessing learning. - Y2 teacher

Whole school approach for all subjects in books so teachers can indicate when achieved.

We have made progress with assessment at LVPS. This has been harder to embed with COVID 19 restrictions but we hope the progress we have made so far will have the intended impact of all areas being in place to show progression and areas of need.

Next steps – SL to continue use TAPS as a whole school assessment tool and following current best practice from future training/research.



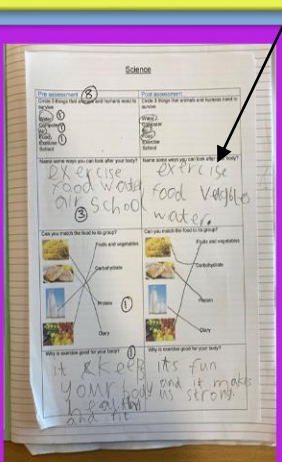
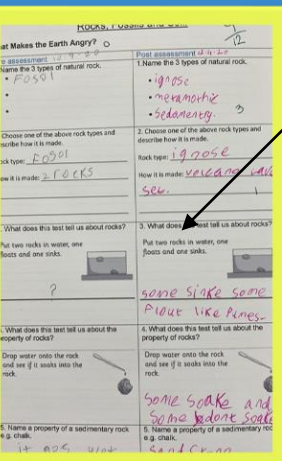
LO: To investigate pulse rates	Me	Today I worked
I can measure a pulse rate accurately	✓	Independently
I can contribute to setting up a scientific experiment	✓	With my teacher
I can record my results and make a conclusion	✓	With a TA
	✓	As a group
	✓	With a partner
	✓	With resources

LO: Compare how things move on different surfaces	Independently	Today I worked
I can plan and carry out an investigation	✓	With my teacher
I can make predictions and say how I will make it a fair test	✓	With a TA
I can test a car on different surfaces and see which one it traveled furthest on	✓	As a group
I can explain what I have found out	✓	With a partner
	✓	With resources

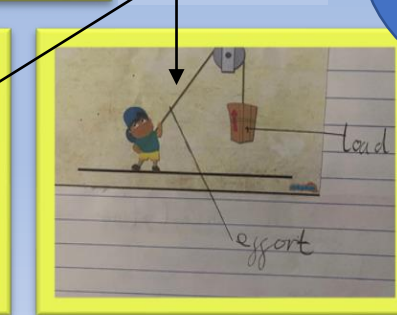
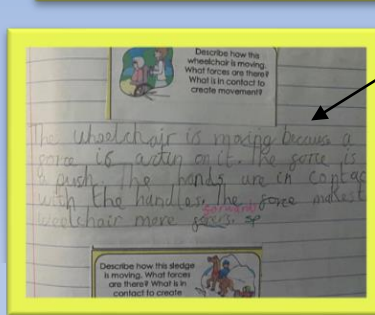
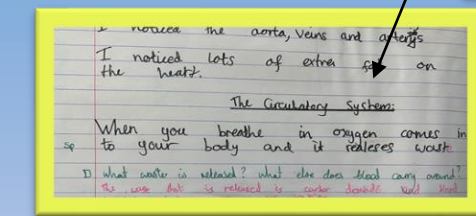
Children know criteria for success in each lesson and mark this depending on their understanding.

<p>Staff meeting – Assessment in Science</p> <p>Meeting aims/Discussion points:-</p> <ul style="list-style-type: none"> Age appropriate formative assessment What do you use in class? Pre-Post assessment – Best Practice from English and Maths Share and discuss Concept cartoons What are they and how can we use them? Non – Negotiables for assessment in Science
--

Year 6	Science	Physics	Light
<p>Antibodies, Infecting Substances</p> <ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system Know the function of the heart, blood, arteries and veins Know the function of the blood, blood vessels and blood Know the function of the blood, blood vessels and blood Know the function of the blood, blood vessels and blood 	<p>Atmosphere and the Earth</p> <ul style="list-style-type: none"> Identify and name the main parts of the atmosphere Know the function of the atmosphere Know the function of the atmosphere Know the function of the atmosphere Know the function of the atmosphere 	<p>Electricity and Magnetism</p> <ul style="list-style-type: none"> Identify and name the main parts of the electricity and magnetism Know the function of the electricity and magnetism Know the function of the electricity and magnetism Know the function of the electricity and magnetism Know the function of the electricity and magnetism 	<p>Light</p> <ul style="list-style-type: none"> Identify and name the main parts of the light Know the function of the light Know the function of the light Know the function of the light Know the function of the light



Staff use a range of age –appropriate methods to assess learning.





Action -Make links with the wider community and ask for science professionals to talk to children about their jobs and careers and how science is used.

The photograph shows a collection of children's environmental art projects. The posters are:

- Plastic Pollution:** Features a green character holding a recycling symbol, with the text 'Plastic Pollution' and 'Don't Litter'.
- Plastic:** Features a green character holding a recycling symbol, with the text 'Plastic' and 'Don't Litter'.
- Don't Litter:** Features a recycling symbol and the text 'Don't Litter'.
- Save the Environment:** Features a recycling symbol and the text 'Save the Environment'.
- Save the Animals:** Features a recycling symbol and the text 'Save the Animals'.

 There are also smaller drawings of a recycling symbol and a green character.

<h2 style="text-align: center;">Science - Rocks</h2>			
Subject	Specific Vocabulary	Interesting Book	Sticky Knowledge about our rocks and magnets
soil	<ul style="list-style-type: none"> A layer of the ground above the rocks and soil beneath. It is made of small pieces of rocks and organic matter that has broken down and mixed together. 		<ul style="list-style-type: none"> Soils have been used by humans for objects of beauty from jewelry and artwork through to various uses in agriculture and industry.
crystals	<ul style="list-style-type: none"> Crystals are a specific kind of solid material made up of molecules that together in a regular pattern. 		<ul style="list-style-type: none"> Soils have been used by humans for objects of beauty from jewelry and artwork through to various uses in agriculture and industry.
sedimentary	<ul style="list-style-type: none"> Sedimentary rocks are made up of small pieces of rocks and organic matter that have been pressed together. 		<ul style="list-style-type: none"> Some people use soils to make things like bricks and tiles.
metamorphic	<ul style="list-style-type: none"> Metamorphic rocks are made up of small pieces of rocks and organic matter that have been pressed together. 		<ul style="list-style-type: none"> Some people use soils to make things like bricks and tiles.
igneous	<ul style="list-style-type: none"> Igneous rocks are formed by molten material that has cooled and solidified. 		<ul style="list-style-type: none"> Some people use soils to make things like bricks and tiles.
organic matter	<ul style="list-style-type: none"> Organic matter is the material that plants and animals are made of. 	<ul style="list-style-type: none"> Some people use soils to make things like bricks and tiles. 	<ul style="list-style-type: none"> Some people use soils to make things like bricks and tiles.

Impact – Children are having opportunities for science at home

Parents use the links to science websites on the school science page. Letters were emailed to promote science at home.

Science fun at home!

Here are some websites for science at home

Further Reading for Parents

An overview of the Science Curriculum <https://www.oxfordowl.co.uk/for-home/school-year/subject-guides/science-at-primary-school/>

Links for Children and Parents

KS1 Science guides and clips <https://www.bbc.co.uk/bitesize/subjects/z6svr82>

KS2 Science guides and clips <https://www.bbc.co.uk/bitesize/subjects/z2pfb9a>

National Geographic for kids <https://www.natgeokids.com/uk/category/discover>

NASA kids <https://www.nasa.gov/kidsclub/index.html>

Games and Apps

The children's university of Manchester <http://www.childrensuniversity.manchester.ac.uk/learning-activities/science/>

The Science Museum <https://www.sciencemuseum.org.uk/games-and-apps>

Ideas for Investigations - ask an adult's permission or for guidance!

Fun Science activities – Oxford Owl <https://blog.oxfordowl.co.uk/science-for-fun-six-super-science-activities-to-try-at-home/>

Science Snacks Investigations <https://www.science-snacks.com/science-experiments-for-kids/>

More fun investigations: <http://sciencehah.com/category/experiments/>

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During this session – the presenter spoke to children about his former role as an aircraft engineer!

A vibrant blue bulletin board titled "SCIENCE" in large, colorful letters. The board is decorated with a variety of educational materials. At the top center is a globe. To the left, there's a poster of a human skeleton and a smaller poster of a human figure. To the right, there's a large poster of a human figure. The board is also covered with numerous small cards, some with text and some with images, and a vertical strip on the right side with numbers 20, 30, 40, and 50. The entire display is set against a yellow background.

<p>dissolve</p> <p>to dissolve is defined as to become broken up or dissolved by something or to disappear into something else.</p>	<p>to know that some materials will dissolve in liquid is a skill</p> <p>to know that a substance will dissolve in a liquid is a fact</p> <p>to know that a substance will dissolve in a liquid is a fact</p> <p>to know how to recover a soluble substance from a solution is a skill</p>
<p>soluble</p> <p>insoluble</p> <p>solubility</p> <p>evaporation</p>	<p>Materials that will dissolve (e.g. Sugar)</p> <p>Materials that will not dissolve (e.g. sand)</p> <p>A solution is made when solid particles are mixed with liquid particles.</p> <p>Evaporation is the process by which water changes from a liquid to a gas or vapor.</p> <p>Aspirations</p> <p>Pharmacist, chef, analytical chemist, biotechnology, chemical engineer, clinical scientist, biotechnology Pharmacist, Research scientist, Scientific, biological, technical, Environmental consultant, Environmental lawyer</p>

Next steps – Continue to provide opportunities for children in school.
Update displays regularly

All children taking part in outdoor classroom – planting potatoes and seeing the results!

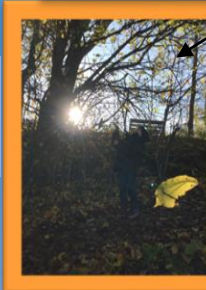
Impact – Children are remembering experiences in school and are able to talk about it after the event.

WO1: There are appropriate links between science and other learning

Action - Ensure that staff are aware of science skills that are used in investigations and lessons.



Home learning – Sunflower projects, the great bug hunt and researching spiders!



Action -Book staff meeting to encourage thinking - Schemas



Dinosaurs are very old and you can find the fossils sometimes when they have been there along time it makes a mark – Y2 child



Science is now a part of whole school initiatives such as the Eco club which ensured that pupils are now engaging in a significant amount of science outside of science lessons.

All pupils are now applying mathematical skills in a wide range of scientific contexts.



Writing – stories are now used as a stimulus for Science – Some even use IT too!

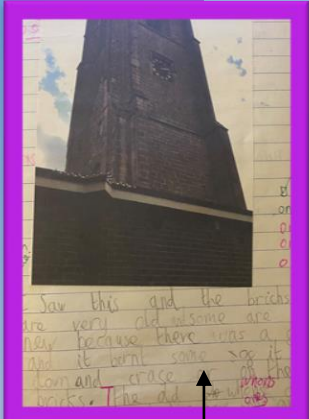


STEM opportunities with our new Lego!



Dinosaur topic work in history and bones, fossils and rocks in science

Space art in Y5



Year 2 went on a walk around our local town to take pictures of old buildings. This was the description that was written in relation to the material its made from.

Planning scrutinies are showing cross curricular links

2.	3.	4.	5.	6.
Can we see variation in selection? What are the specific traits and genes?	Science: Animals including humans Maths - Data Handling	1. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations 2. identifying scientific evidence that has been used to support or refute ideas or arguments	1. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations 2. identifying scientific evidence that has been used to support or refute ideas or arguments	1. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations 2. identifying scientific evidence that has been used to support or refute ideas or arguments

Impact - Cross-curricular links offer s a creative way to develop children's knowledge, skills and understanding while motivating them to learn through stimulating, interconnected topics.

Next steps – Look for cross curricular links in other topics. Find training on progressing cross curricular links with science



DT and cookery clubs– Mechanisms, making a healthy meal for your body and mixing ingredients to make bread.

WO2: There are appropriate links with families, other schools, communities and outside organisations to enrich science learning

Action - Complete science day and book in science week and ensure children have access to events in the community in relation to science

Science day gave all children a 'wow' and completing investigations



We invited STEM Lego to show us how to use our new lego kits!



'All about your pet' day at our local pet store.



Impact – Children are able to talk about their learning in science in other contexts.



Our local butchers gifted us hearts to use in Y6



Parachute experiments and den building with children from another school – pre covid

Home Learning



Great bug hunt



We loved the great bug hunt! It was lovely to get outside for fresh air and learn at the same time - Parent



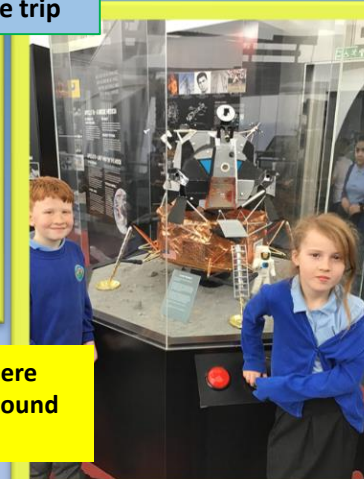
Action -Find and book initiatives such as 'Green Day' in our local area

Local waste center visit and Vileda Recycling trip



Y5 Space trip

I've never seen robotics before, only on the TV. It's amazing! – Y5 Child



Impact – Children are aware there are science opportunities all around them.



Next steps – Science fair and for parents and carers to join us.
Re-establish links with the local secondary school
Book trips and visitors

Science at Lawrence View is our strength. We have made such a massive difference in a short amount of time. I'm looking forward to continuing this journey in more normal times – Head Teacher



As SL I feel our principles, vision and school vision are being fulfilled. The impact of the PSQM in this difficult year has been incredible and it can only get better!

It's just so different. Everything is organised, I know what I'm doing now and for the first time I enjoy teaching science! – Y4 Teacher

I love science, its my favourite subject. I want to be an engineer for NASA! – Y5 Child

