We Love Science!
London Fields Primary

Beginning with their initial ideas, learners build their display as a record of their learning.

Ongoing observational investigations are displayed and recorded.

Children display their work and progress as they ‘move’ through topics.

A4 There is a shared and demonstrated understanding of the importance and value of science to children’s learning.

B2 There is a range of teaching and learning approaches for Science.

C1: All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.

C1: All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.

Y1 Science classroom learning wall

Y5 Science classroom learning wall
We Love Science!
Our School

Y4 Science classroom learning wall

Key vocabulary displayed.

Topic ‘big question’ displayed.

Weekly key questions displayed and referred to.

SOLO outcomes are displayed and referred to as learners progress through topics.

B2 There is a range of teaching and learning approaches for Science.

Y6 Science classroom learning wall

Dining Hall nutrition display

A4 There is a shared and demonstrated understanding of the importance and value of science to children’s learning.

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.

C1: All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.

A4 There is a shared and demonstrated understanding of the importance and value of science to children’s learning.
We Love Science!
Our School 3

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.

There is a shared and demonstrated understanding of the importance and value of science to children's learning.

A4 There is a shared and demonstrated understanding of the importance and value of science to children's learning.

Corridor Science careers display

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.

There is a range of teaching and learning approaches for Science.

B2. There is a range of teaching and learning approaches for Science.

Meaningful practical activities that link back to the 'big question' provide opportunities for children to apply their understanding.

Records of results from investigations are displayed.

A4 There is a shared and demonstrated understanding of the importance and value of science to children's learning.

Children display their work and progress as they 'move' through topics.

Formative assessment 'what do I know' activities are completed at points throughout the unit and progress is displayed.
We Love Science!  
Our Pupils

Sample of feedback from June 2017 Pupil Surveys

**Year 3 Pupil Voice Feedback**
- Children enjoy learning about new things, experimenting with things, playing with magnets, answering their own questions, coming up with their own experiments.
- Children would like more outside learning, more active lessons, more writing, more experiments to observe scientific ideas.
- Children think Science is about learning different things, building on things you already know a lot about, experimenting, trying out ideas for yourself, learning about the things around you.

**Year 4 Pupil Voice Feedback**
- Children enjoy experiments (how to make ice cubes melt quicker), writing out results, coming up with ways to answer questions, testing out ideas, workshops and Science shows, creating their own, learning about the digestive system and making videos about how it works.
- Children would like more experiments, more writing and topic writing, more active lessons, more explosions, more complicated investigations.
- Children think Science is about testing your ideas, finding out how and why something works, finding out how things happen, finding out how and why the world works.

**Year 5 Pupil Voice Feedback**
- Children enjoy experiments such as melting, creating cosmetics (Essential oils), making writing that is linked (such as imagining you are working in a chemical lab), lots of new learning that you can try at home, lots of videos, useful information about the world. Science trips (such as Royal Institution, practical lessons, labelling diagrams, science performances and topics with big questions).
- Children would like more experiments, less topics but investigating them more deeply, more links to drama, more chances to be creative.
- Children think Science is about what is happening in the world, why the world works, helping us to make new things that help the world, fair tests, methods, experiments, testing what we already think we know.

**Year 6 Pupil Voice Feedback**
- Children enjoy practical lessons, clear explanations, big topic questions, links to real world, experiments, trips (like Launchpad), interactive trips, clear displays.
- Children would like more experiments, more new topics and less overlap, more depth and complex ideas, more workshops, more questions to investigate, more interactive trips.
- Children think Science is about understanding the world, fun, understanding how things work, new ideas, things in life and how they work, things in the world that are not used (like how your body helps you to be healthy).

School Council auditing Science books for evidence of ‘principles in action’

1) In year 5 we found most evidence of & investigations and practical lessons. We also found lots of evidence of question based lessons.

2) We couldn’t find much evidence of science outside (yellow) and there wasn’t much blue apart from science weeks.

3) I think Science being practical and using investigations most important. Going on trips because they are lessons you remember.

4) Science is my best subject which is mainly because you go outside when you learn outside.

Each year group wrote feedback on what they found out.

High proportion of children indicated trips, workshops and experiments included this year as positive, following previous survey.

Example of section of September 2016 pupil survey form used in KS2.

**A2:** There is a clear vision for the teaching and learning of science.

**C3:** Children enjoy their science experiences in school.

Children colour-coded the principles and marked them in books with matching post-it-notes.

What do you enjoy about Science lessons at London Fields?

* I enjoy science because it is for us and you get to learn. Also the experiments are real and we can find out when we had the science.

What do you think could make Science lessons better at London Fields?

* I think we should make science lessons more real outside like making robots of air resistance.
Science Beyond the Classroom
Workshops, Visits and Trips

Science Made Simple shows for the whole school for British Science Week.

Y3 children using the Google Expedition app, virtual reality viewers and smartphones to explore a range of habitats and design adapted organisms that could live there.

Y5 children applying their understanding of reversible and irreversible changes to create cosmetics at L’Oreal Young Scientist Lab.

C1: All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.

C3: Children enjoy their science experiences in school.

Y2 children observing, monitoring and learning to hatch and care for ducklings as part of ‘Do I need the same things as a duckling?’ topic.

B3 There is a range of up-to-date, quality resources specifically for teaching and learning science. ICT is used both as a tool and as a resource for teaching.

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.
There are clear links to other schools and outside agencies/organisations/communities to enrich science teaching and learning.

Y6 children rock-pooling and classifying the organisms they find while on school journey to the Isle of Wight.

Y2 children using their results from their habitat survey in a local park to create ‘bug hotels’ to attract more wildlife to our school site (adapted from ReachOutCPD).

Y1 children conducting a tree survey, identifying trees in a local park.

Y6 children rock-pooling and classifying the organisms they find while on school journey to the Isle of Wight.

Y2 children using their results from their habitat survey in a local park to create ‘bug hotels’ to attract more wildlife to our school site (adapted from ReachOutCPD).

C1: All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.

B1: Staff continue to have opportunities for CPD within science including training and support that increases their skills, knowledge and understanding.

Children in the Early Years planting seeds in the bio-dome.

Children using their maths skills to experiment with tallying the trees they observed.

Y3 children surveying the lunchtime food waste in the dining hall as part of their community project.

Children in the Early Years planting seeds in the bio-dome.

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.

D2 There are clear links to other schools and outside agencies/organisations/communities to enrich science teaching and learning.

Children in Foundation Stage exploring the pattern of leaves through leaf printing at Forest School.
Teaching and Learning
SOLO Taxonomy

Every topic has a ‘big question’ children work towards answering.

Children reflect by indicating in green when they think they have acquired a new piece of learning.

B2 There is a range of teaching and learning approaches for Science.

B1 There is a range of teaching and learning approaches for Science.

Ideas for related activities and trips/visits parents could do at home included.

A1 There is an effective subject leader for science.

A2 There is an effective subject leader for science.

Example termly curriculum overview uploaded onto website

Year 2 SOLO topic
cover page

C1. All pupils are actively engaged in a science enquiry, using a variety of inquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.

B1 There is a range of teaching and learning approaches for Science.
Teaching and Learning
Topic Writing

Year 2 explanatory writing about how to look after ducklings.

Year 4 report writing about a chosen animal

- Jaguar

Looking after ducklings

What is a duckling?
- A duckling is a small, yellow and fluffy animal.
- It is the offspring of an adult duck. The duck is a bird that lays eggs on land.

What do ducklings need to survive?
- To survive, a duckling needs water because it helps to deal with heat. The duckling can be saved sometimes, so it needs food to stay healthy.

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.

B2 There is a range of teaching and learning approaches for Science.
Every lesson includes a specified form of enquiry.

**Planning**

### Year 3 medium term planning document

**Relevant SOLO outcomes to highlight in every lesson:**

- **MATHS** - This lesson will need children to reason at the 'Connected' level. Make this link explicit.

**Identify different surfaces:**

- Get children to consider the SOLO learning outcomes for this lesson. What questions do they still have about friction? Make a list. Afterwards you could use some of the feedback received from the children lesson as a starting point.

- [Read more](http://www.teachingresource4u.co.uk/details/lesson-plan-friction/)

- Pause at the appropriate point and discuss with children. This way then think about why they think one of the objects is the odd one out. Prompt them with some starter sentences.

- I think the... is the odd one out because...

- Remind the children that different surfaces create different amounts of friction.

- Show children a toy car and some different materials (sandpaper, tin foil, carpet, cardboard). How could we test if this is true?

- Structure children’s responses into a scientific question.

- How do... affect friction?

**Main Lesson:** Investigating how different surfaces affect friction.

- Introduce that today we are going to conduct a new kind of inquiry. The last 2 lessons we have been observing, but today we are going to carry out a fair test. This means we are going to find how a toy car travels but we only one variable.

- What variables are going to change? This thing we will call a variable. Which variables are we going to change?

- The variable we are going to change is... because we want to know...

- Discuss with the children the other variables that could be changed. Explain that these variables need to stay the same, otherwise the test won’t be fair and we won’t know whether the surfaces make the difference.

- Role play the beginning of the experiment. “Tell the children you want to know if the tin foil or sandpaper travels further, how can you test this? How do we know?”

**Book Activity** - Children complete a fact task activity in books showing they understand how their inquiry is a fair test. Discuss with children that they are clear of expectations. Activity could be children listing all the variables and then discuss the one they will change. For KS2 invite a written explanation of how they will keep their experiment fair. For KS1 add a diagram of the experiment of all the variables that need to stay the same, and in green print the one they will change.

- Conduct the experiment below. Ensure the experiment is structured and thoughtfully enough for children to work purposefully. Model each stage of the investigation.

- Ask the children which variable they think will travel furthest. How do they know? Prompt the children with some starter sentences and vocabulary you want them to use such as smooth, rough, most friction, least friction.

- Video-record some children explaining their prediction to their partner using scientific vocabulary.

- I think the car will travel furthest on...

**Resources:**

- (per group)

### B2 There is a range of teaching and learning approaches for Science.

**Planning**

### Year 2 medium term planning document

**Relevant SOLO outcomes to highlight in every lesson:**

- **Health and safety** - I can put a tick to show a lesson is healthy and a cross if it is unhealthy.

- **EYFS** - For the healthier lesson I can say or write an explanation of how they know.

- My explanations can include some of the following:

  - Special educational needs
  - Health issues
  - Dietary
  - Allergies
  - High blood pressure
  - Unhealthy snacks

- I can use these SOLO level and food groups to design a healthy lunchbox.

**Explicit cross-curricular links included in planning:**

- **B2. Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.**

**Relevant principles explicitly referenced in each lesson:**

- **A1 There is an effective subject leader for science.**

- **B1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.**

- **B2. There is a range of teaching and learning approaches for Science.**

- **See slide 23 for work samples from schools who have worked with who have adopted this planning.**
Planning

Y1 Science lessons always include a carousel of independent activities. One is always outdoors.

A1 There is an effective subject leader for science.

B2 There is a range of teaching and learning approaches for Science.
### Year 4 medium term planning document

#### Relevant SOLO outcomes to highlight to children:
- None and outcomes are to:
- Know some of the main bones in the skeleton.
- Use language to describe the difference between hard and soft materials.

#### How can children interpret?
- Pose the lesson question to the children. Record ideas as a class.
- Show chin picture of Usain Bolt. What does Usain Bolt need his body to be able to do? To run fast. To jump.
- How does his body help him to do this? Load discussion towards the idea of what would happen to Uain Bolt if he tried to run with no bones.

http://www.targetteaching.co.uk/Files/function-of-the-skelet--143/(support, protector, movement.)

#### Activity 1 – Choo match the names of the bones to the correct place on the skeleton. This could be on a life-size model of a child in the class or using the class skeleton. This could take the form of a quiz of class/images that the children have to work out for themselves.

#### Activity 2 – Choo picture of stag beetle. Thinking about the skeleton and its role:
- What is the name? What is different?
- Choo write brief paragraph of human skeleton and insect skeleton.
- Use children to identify similarities and differences or write statements into ‘same’ and ‘different’ categories.

#### SOLO ‘success criteria’ build skills and understanding through weekly cycles.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Ideas for explicit differentiation included in planning.</th>
<th>Key vocabulary: brain capacity, bipedal, quadrupedal, opposable thumb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 6 example medium term planning document (prior to planning review)</td>
<td></td>
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</tr>
</tbody>
</table>
- Ideas for explicit differentiation included in planning.
  - Use the changes in the human skeleton since we evolved from a primate ancestor.
  - Compare the skeletons of chimpanzees and humans.
  - Can you use what I have learnt about evolution to reflect on how quality and their long needs.
- SOLO ‘success criteria’ developed into child-friendly outcomes for each lesson.
  - B2 There is a range of teaching and learning approaches for Science.
| Implicit Afl opportunities included in planning. | 
- Explicit cross-curricular links included in planning.
- B3 There is a range of up-to-date, quality resources specifically for teaching and learning science. ICT is used both as a tool and as a resource for teaching. | 

<table>
<thead>
<tr>
<th>Principle</th>
<th>SOLO ‘success criteria’ support and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.</th>
<th>Planning</th>
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</thead>
<tbody>
<tr>
<td>2 Classifying and Grouping Inquiry</td>
<td>A1 There is an effective subject leader for science.</td>
<td></td>
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<tr>
<td>Principles: 1, 3</td>
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</tbody>
</table>
**To understand animals and humans.**

- I can match the main bones in the skeleton with their names.
- I can write a comparison of the human skeleton with a stag beetle.
- My comparison talks about how human and stag beetle skeletons are:
  - Similar
  - Different

<table>
<thead>
<tr>
<th>Id</th>
<th>Relevant SOLO outcomes to highlight to children:</th>
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<tbody>
<tr>
<td>A1</td>
<td>There is an effective subject leader for Science.</td>
</tr>
<tr>
<td>B1</td>
<td>To understand evolution and inheritance.</td>
</tr>
<tr>
<td>D1</td>
<td>Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.</td>
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</tbody>
</table>
Pupil’s Work

Investigation write up is differentiated to enable all children to access the science learning.

Year 2 work sample.

Y2 children using data loggers to measure the intensity of light in order to enhance their understanding of light and dark.

Year 2 pre-unit questions.

Year 4 pre-unit assessment task.

C1: All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.

B2: There is a range of teaching and learning approaches for Science.

B3: There is a range of up-to-date, quality resources specifically for teaching and learning science. ICT is used both as a tool and as a resource for teaching.

Children ask questions that are linked to their topic they can investigate and self-assess against in later lessons.

After looking at our topic title, Do I need the same thing as a duckling, we thought about what questions we have about it. Here’s some of our ideas:

What would you like to find out about animals and offspring?
Why do camels only live in the desert?
Do animals all have the same type of skin?

What if it is made of plastic?

What do you want to know about electricity?

Can we ever run out of electricity?

Why is it dangerous?

What are common household electrical items?
Year 4 work sample of classification keys.

- Pupil's Work 2

Year 3 work sample.

- Y3 children ask questions they later investigate while learning about seed dispersal.
- Year 4 work sample of classification keys.
- C1: All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.
- C3: Children enjoy their science experiences in school.
- B3: There is a range of up-to-date, quality resources specifically for teaching and learning science. ICT is used both as a tool and as a resource for teaching.
Pupil’s Work 3

Y5 children applying their understanding of gravity and air resistance to investigate how surface area affects air resistance and their questions about gravity or magnetism being a stronger force (adapted by teacher from TigTag CPD resource).

Year 3 work sample on magnets.

Differentiated task in which children asked a series of questions about magnets before testing out their ideas.

A1 There is an effective subject leader for science

B1: Staff continue to have opportunities for CPD within science including training and support that increases their skills, knowledge and understanding

Tasks are differentiated to enable all children to access the science learning.

C1: All pupils are actively engaged in a science enquiry; using a variety of enquiry strategies, independently making decisions, using evidence to answer their own questions, solving real problems, evaluating their work.

C3: Children enjoy their science experiences in school.

Y4 children use clues and images to explore and identify different bones in the body (adapted by teacher from ReachOutCPD).

B3 There is a range of up-to-date, quality resources specifically for teaching and learning science. ICT is used both as a tool and as a resource for teaching.
Year 6 acting out the circulatory system enabled the children to answer the topic question at the end of the unit of work with assistance from Tig-Tag resources.

Life size human and chimpanzee skulls from the Science cupboard enabled children to draw, detailed and accurate drawing and find similarities and differences.

Children drawing a human and chimpanzee skull

Year 6 children creating and using a periscope to help answer the topic question – Is it possible to see around corners? (adapted from ReachOut activity)

Y6 explaining how a periscope works.

Year 6 using the ICT resource Popplet on the ipads to complete a research project into the growth of black peppered moths and the near extinction of the white peppered moth.

Year 6 explaining how a periscope works.

A range of up-to-date, quality resources specifically for teaching and learning science. ICT (i-pads) is used both as a tool and as a resource for teaching.

83 There is a range of up-to-date, quality resources specifically for teaching and learning science. ICT (i-pads) is used both as a tool and as a resource for teaching.

B3 There is a range of up-to-date, quality resources specifically for teaching and learning science. ICT (i-pads) is used both as a tool and as a resource for teaching.

Y6 children creating and using a periscope to help answer the topic question – Is it possible to see around corners? (adapted from ReachOut activity)

Differentiated task allowing all children to access the learning and explain how periscopes work – leading onto the final topic assessment.

Year 6 using the ICT resource Popplet on the ipads to complete a research project into the growth of black peppered moths and the near extinction of the white peppered moth.

Assessment in the form of a letter to M15 solving their problem about How to...
Assessment

Teachers and support staff indicate from their observations and work samples whether children met success criteria of every lesson.

A1 There is an effective subject leader for science.

C2: The purpose of science assessment is well understood and shared by the members of the school community. Assessment approaches are designed to fit those purposes.

Asterix indicates an additional observation/photo/work scan has been uploaded onto Target Tracker.

Examples of Y3, Y4 and Y5 (left to right) end of unit assessments designed by teachers.

Questions tightly linked to content curriculum objectives.

Teachers use books, observations and lesson trackers to assess children termly against age related band statements.

Colours indicate the depth of attainment of each statement.

Y1 Example of Lesson Tracker

Y2 Example of Target Tracker individual assessment report

Pupil Summary Report

Beethoven Y1

<table>
<thead>
<tr>
<th>Lesson 1: birds</th>
<th>Lesson 2: fish</th>
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<tbody>
<tr>
<td>I can name a variety of birds.</td>
<td>I can name a variety of fish.</td>
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<tr>
<td>I can match bird names to pictures.</td>
<td>I can match fish names to pictures.</td>
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<td>I can identify some similarities between birds.</td>
<td>I can identify some similarities between fish.</td>
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Science: Working Scientifically - Band 1

1. Use the function keys to list the products of the unit.

Science: Animals, including humans - Band 2

1. Understand that animals, including humans, have unique traits that help them survive.

Science: Living things and their habitats - Band 2

1. Understand and explain the differences between plants and animals that have survived and those that have not.

Science: Materials - Band 2

1. Identify and describe the properties of materials that make them suitable for different purposes.
Assessment

A1 There is an effective subject leader for science.

C2: The purpose of science assessment is well understood and shared by the members of the school community. Assessment approaches are designed to fit those purposes.

At the end of every lesson, children feedback to the teacher about any questions they have or things they don’t understand.

Example Year 4 AFL ‘feedforward’ boards.

Example Year 6 AFL ‘feedforward’ boards.

Children are asked to apply what they have learnt to answer their topic question.

Children also indicate what they have learnt on a second ‘feedforward’ board.

Y5 end of unit ‘big question’ assessment task (How could we travel to another planet?).

Westminster Cathedral Primary adapting our topic ‘big questions’ as an end of unit assessment.

B2 There is a range of teaching and learning approaches for Science.

Y6 end of unit ‘big question’ assessment task.
Example lesson study record completed by teacher research group.

Step 4: The post-lesson study discussion

- What was planned for each pupil to learn?
  - How to classify animals (using 3 core questions: plant or animal, vertebrate or invertebrate, and size)
  - Key vocabulary: vertebrate, invertebrate, class, organ
  - Learn about a key scientific term (dorsal or ventral)

- What actually happened?
  - They made their own classification system, all groups used core 3 questions.
  - Made their own classification key with a deeper level of questioning.

- What accounts for any differences between these?
  - Prior knowledge: eg. dippers are mammals, frogs have tadpoles
  - Use scientific vocabulary such as parthenogenesis or metamorphosis

- How much progress each pupil made?
  - UA could ask the first core question, with prompts ask the following 2 core questions. Could recognize key vocabulary but might be confused in using vocabulary, could use practical skill by making a classification system.
  - MA - felt confident in using vocabulary, could use practical skill by making a classification system. Able to justify and identify errors in other's work.

- What aspects of the teaching technique could be adjusted to improve the progress of each pupil?
  - Better differentiation of task, allowing for deeper questioning.

Prompts are used to focus post lesson discussions and encourage reflection.

Teachers anticipate the learning of focus children at each stage of the lesson and then compare this with what they observe.

Caroline Lesson Study Feedback

Thank you to all who engaged so positively and proactively in this week’s staff meeting. I found it extremely useful and felt honoured to work with such a professional and committed staff group. There was a very high degree of relational trust in the room. I have summarised the key messages below – please do come back to me if you think I have missed anything.

Vocabulary:
- Carefully considering what vocabulary the children will need to access the lesson.
- Consider different ways of teaching vocabulary – repetition on every slide, actions, visuals, MMAT
- Use of stem sentences to help children structure discussions – this is something I think we need to move on. Children won’t write in sentences if they don’t talk in them. Also it will help them to explain their thinking.
- Concept of level 2, 3, and 5 vocabulary to ensure the vocabulary taught is pitched correctly (see website).
- Make no assumptions about children’s vocabulary understanding.
- Vocabulary maps/labelled diagrams for IAU.

Teaching the same vocabulary at all stages but thinking about facilitating the IAU to use it in a more sophisticated manner.

A5: The science subject leader knows about science teaching and learning across the school

Each research group presented their findings and the techniques they had developed that had most impact on outcomes.

B1: Staff continue to have opportunities for CPD within science including training and support that increases their skills, knowledge and understanding.

Staff update record of lesson study feedback meeting.

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- Vocabulary maps/labelled diagrams for IAU.

Teaching the same vocabulary at all stages but thinking about facilitating the IAU to use it in a more sophisticated manner.

Each research group presented their findings and the techniques they had developed that had most impact on outcomes.
Science Beyond Science

Year 5 book sample from an investigation about chick growth rates.

Year 2 using their measuring skills to measure and compare body parts.

Children applying their measuring skills and calculating averages.

Children applying their understanding of line graphs to present their results.

Science Club keep records of experiments conducted at home in their bid to become London Fields Investigators.

Some children used cubes instead of rulers to measure their body parts.

Y1 use collage and finger painting to show parts of plant and seasonal changes.

Photograph sent in of Y1 child growing a courgette plant sent home as a seed.

B3 There is a range of up-to-date, quality resources specifically for teaching and learning science. ICT is used both as a tool and as a resource for teaching.

Y1 use collage and finger painting to show parts of plant and seasonal changes.

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.
**Outreach School-to-School**

Samples of feedback from schools attending Deputy Heads conference at Hackney Learning Trust.

A1 There is an effective subject leader for science.

D2 There are clear links to other schools and outside agencies/organisations/communities to enrich science teaching and learning.

**Feedback from VL Conference**

- 93% of participants indicated they would use elements of our Science SOLO teaching and learning strategies in their own school.
- 100% of participants who indicated they would not use elements of our Science SOLO strategies said this was because they were not involved in Science.

**What elements of our use of the SOLO taxonomy in Science will you try at your school?**

- *Initially would ask staff to look at what type of learning - deep or surface level learning is happening in a lesson and they have to think about how they would move this up.*
- *Working core content level of each feedback.*

**What elements of the SOLO taxonomy in Science will you try at your school?**

- *Sharing the whole learning with all children - particularly thinking about what they already know.*
- *Shared language/vocabulary being consistent across the school.*

**Thank you.**

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**To understand animals and humans.**

I can put the stages of the duck life cycle in order.

In my duck life cycle I can label each stage.

In my duck life cycle I can remember to use the words:
- egg
- young
- duckling
- duck
- duck

**What does a duckling eat as a duckling?**

Pose the question to the children. Record ideas as a class.

Introduce the duck egg to the children. What questions do they have? Make a list.

Show the images of duck life cycle. Challenge them to place them in order and describe what happens.

Activity – Act out different stages of duck life cycle using key vocabulary. Sequence pictures/book vocabulary on large cards.

**Year 2 work sample from Westminster Cathedral Primary using our medium term plans.**

**Year 2 work sample from Shoreditch Park Primary adapting our medium term plans.**

**Year 4 work sample from Courtlands Primary using our medium term plans.**

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**A1 There is an effective subject leader for science.**

**B2 There is a range of teaching and learning approaches for science.**

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Excerpt from school newspaper documenting Y1 community project convincing people to reduce food miles.

We made posters telling people about the problem of food miles and what they can do to help.

We also showed people in the local area how they could grow their own vegetables at home.

Outreach Community

Y4 children convincing office workers to reduce their screen time and join them for their 'Daily Mile' in the park.

D2 There are clear links to other schools and outside agencies/organisations/communities to enrich science teaching and learning.

Children interacting with the public and showing them how to plant vegetable seeds.

Direct quotations from members of the public.

"I will definitely go home and plant some seeds of my own!"

"How now I know Ian mom about the problem of food miles."

"I never knew you could grow so many vegetables in the winter."

"How now I will make sure I check where my fruit and veg comes from."

Letters from Sadiq Khan (Mayor of London) and Diane Abbot MP in response to Y5 writing about their growing concerns about air pollution.

MAYOR OF LONDON

Year 5
C/o Emma Walker
London Fields Primary School
Westgate Street
London E8 3HL

Date: 5 May 2017

Thank you for your letters about air pollution around your school. I can see how concerned you all are about air pollution and I can feel you — so we are. When I was your age growing up in Islington, we didn’t know how harmful the air we breathe was, so it’s great you are learning about it as part of British Science Week.

I can also see from your letters that a lot of you are concerned about buses idling close to your school. Transport for London (TfL) expects their bus drivers to switch their engines off when it’s not needed, and have training and posters in bus garages to make sure drivers know this. My office has raised this with Leoni Dansfield, Managing Director for Surface Transport at TfL, to remind drivers not to leave their engines running. Your local borough, Hackney, might also be able to help as they are able to idle bus drivers.

Y1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.

Direct quotations from members of the public.

"How now I know Ian mom about the problem of food miles."

"I never knew you could grow so many vegetables in the winter."

"How now I will make sure I check where my fruit and veg comes from."

Here is what some people said about the campaign.

"I will definitely go home and plant some seeds of my own!"

"How now I know Ian mom about the problem of food miles."

"I never knew you could grow so many vegetables in the winter."

"How now I will make sure I check where my fruit and veg comes from."

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.
Outreach
Community 2

D2 There are clear links to other schools and outside agencies/organisations/communities to enrich science teaching and learning.

Y5 children completing Science demonstration in Spanish link school. London Fields children explained the experiment in Spanish which enabled the Spanish children to understand and carry out the experiment themselves.

Children in Y6 in first Skype contact with Madrid link school and discuss their favourite investigations.

Children in Y6 in third Skype contact with Madrid link school demonstrating their favourite science experiment.

D1 Science supports and links with other curriculum areas and contributes to maximising whole school initiatives while retaining its unique status.

Y3 children educating local businesses about the importance of composting and getting their agreement to use school composting bins.

Y5 children completing Science demonstration in Spanish link school. London Fields children explained the experiment in Spanish which enabled the Spanish children to understand and carry out the experiment themselves.