Science Skill Progression Map

SCIENCE		RECEPTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	Upper KS2 (Y5 and Y6)
Scientific Enquiry	**QUESTION**	**Ask simple questions** about immediate environment.	**Ask questions** and know some can be answered using scientific enquiry.		**Identify scientific questions.** ie can be investigated through scientific enquiry.		**Raise scientific questions** and **hypothesise**
	Oracy skills	Speak loudly enough to be heard and understood. To pronounce words clearly when speaking. *Maintain appropriate eye contact with the listener* Use talk during play to practice new vocabulary. To ask questions. Look at the other person during a conversation. To speak to a partner during whole class teaching.	**Year 1:** To use the appropriate tone of voice in the right context. To speak clearly and confidently in a range of contexts. Organise a group discussion without adult support. Take part in group discussions. Scaffold turn taking e.g. pass talk around a circle, talking object. Introduce scaffolds for turn taking Use visual aids to support talk e.g. turn taking, builder, challenger. **Year 2:** To adapt speech to different situations e.g. when talking to an adult/ in assembly as oppose to when speaking to friends. Use appropriate sentence stems when building on the ideas of others or challenging them. To ask specific questions to find out more. Identify the audience and begin to target talk which might interest them. To be aware if others haven't spoken and invite them to join the discussion. To speak to people, asking them questions with a purpose. E.g. interview a grandparent about historical questions.		**Year 3:** To reflect on discussions and decide how to improve. Adapt the content of their speech for a specific audience. Speak confidently in front of an audience. Take on an expert role e.g. deliver a talk, explain to visiting parents/ buddy class children. **Year 4:** To use carefully considered words and phrases which matches the purpose of the talk. To give evidence for their opinions. To speak to an unfamiliar adult for a purpose		**Year 5:** Use an increasingly sophisticated range of sentence stems with fluency and accuracy. Listen for extended periods of time. Speak with passion about a topic which is important to them. **Year 6:** Vary sentence structures and length for effect when speaking Spontaneously respond to increasingly complex questions citing evidence.

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	OBSERVE	**Qualitative** Talk about similarities and differences.	**Qualitative and Simple Quantitative** Observe change over time. Use Senses/ equipment.	**Qualitative and Quantitative** Measure change over time e.g. plant growth. Select equipment	Systematic/ careful observations. Use bar charts, pictograms, tables.	Accurate measurements. Use time graphs and other graphs.	**Qualitative and Quantitative** Accurate/ precise measurements, Diagrams, tables, bar and line graphs.	Take repeat readings when appropriate. Scatter graphs.
	Oracy skills	Speak loudly enough to be heard and understood. To pronounce words clearly when speaking. *Maintain appropriate eye contact with the listener* Join ideas together using and, because or but. Give a relevant answer when asked a question. Listen to a friend and respond with an appropriate comment. To take turns in a conversation with a friend, adult or working in a group. Look at the other person during a conversation.	**Year 1:** To pronounce a wide range of words correctly when speaking. To try out new words. To give reasons for their opinions. To explain events in chronological order. Organise a group discussion without adult support. Take part in group discussions. Scaffold turn taking e.g. pass talk around a circle, talking object. Introduce scaffolds for turn taking Use visual aids to support talk e.g. turn taking, builder, challenger. **Year 2:** To start to use gestures to support ideas e.g. gesturing towards someone if they are referencing them. To be aware if others haven't spoken and invite them to join the discussion.	**Year 3:** Choose specialist language and vocabulary appropriately. Make precise language choices. **Year 4:** To use carefully considered words and phrases which matches the purpose of the talk. Consider the impact of their words on others when giving feedback. To work collaboratively to solve a problem.			**Year 5:** Listen for extended periods of time. **Year 6:** Spontaneously respond to increasingly complex questions citing evidence.	

Science Skill Progression Map

	CLASSIFY and FIND PATTERNS	Talk and Sort	Identify and Classify		Classify and Find Patterns		Classify and Find Patterns	
		Use simple scientific criteria.	e.g. familiar plants, animals, materials Compare and contrast	e.g. living/ dead/ never alive; materials Compare differences	Classify animals/ materials. Link two variables e.g. *the closer the magnet the bigger the force.*	Use simple classification keys. Link two variables e.g. *the more cells in a circuit, the brighter the bulb.*	Use complex classification keys. Identify causal relationships.	Develop classification keys. Identify evidence that supports/ refutes causal relationship.
	Oracy skills	Speak loudly enough to be heard and understood. To pronounce words clearly when speaking. *Maintain appropriate eye contact with the listener* Join ideas together using and, because or but. Give a relevant answer when asked a question. Listen to a friend and respond with an appropriate comment. To take turns in a conversation with a friend, adult or working in a group. Look at the other person during a conversation.	**Year 1:** To pronounce a wide range of words correctly when speaking. To use vocabulary appropriate to the specific topic To try out new words. To ask relevant questions when they haven't understood. To give reasons for their opinions. To disagree with someone else's opinion. Listens to others and changes their mind based on what they have heard. Organise a group discussion without adult support. Take part in group discussions. Scaffold turn taking e.g. pass talk around a circle, talking object. Introduce scaffolds for turn taking Use visual aids to support talk e.g. turn taking, builder, challenger. **Year 2:** To start to use gestures to support ideas e.g. gesturing towards someone if they are referencing		**Year 3:** Explain opinions which aren't their own during a debate. To be able to summarise a discussion. To reach a shared agreement during a discussion. **Year 4:** To use carefully considered words and phrases which matches the purpose of the talk. To give evidence for their opinions. Consider the impact of their words on others when giving feedback. To work collaboratively to solve a problem.		**Year 5:** Draw on knowledge to support opinions and explore alternative points of view. **Year 6:** Vary sentence structures and length for effect when speaking Spontaneously respond to increasingly complex questions citing evidence. To be able to read a room or group and act accordingly.	

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			them. To adapt speech to different situations e.g. when talking to an adult/ in assembly as oppose to when speaking to friends. Use appropriate sentence stems when building on the ideas of others or challenging them. To build on other people's ideas during discussions. To be aware if others haven't spoken and invite them to join the discussion.			
	CONTROL INVESTIGATIONS: comparative and fair testing	**Explore** objects/ materials/ living things/ resources designed to model scientific processes.	**Simple comparative tests**		**Comparative and fair tests**		**Design own comparative and fair tests**
			e.g. *What is the best material for an umbrella?*	e.g. *What if plants do not get light and water?*	**Predict.** Fair tests e.g. *How does distance affect magnet strength?*	**Predict.** Language of independent and control variable.	Identify when and how to use tests. Recognise and control variables. Make predictions based on previous test results.
	Oracy skills	Use talk during play to practice new vocabulary. To ask questions. Give a relevant answer when asked a question. To take turns in a conversation with a friend, adult or working in a group. Look at the other person during a conversation. Visits, time spent with buddy class to practise speaking to unfamiliar adults.	**Year 1:** To pronounce a wide range of words correctly when speaking. To use vocabulary appropriate to the specific topic To try out new words. To give reasons for their opinions. To disagree with someone else's opinion. Listens to others and changes their mind based on what they have heard. Organise a group discussion without adult support. Take part in group discussions. Scaffold turn taking e.g. pass talk around a circle, talking object.		**Year 3:** Choose specialist language and vocabulary appropriately. Make precise language choices. To reflect on discussions and decide how to improve. **Year 4:** To use carefully considered words and phrases which matches the purpose of the talk. Consider the impact of their words on others when giving feedback. To work collaboratively to solve a problem.		**Year 5:** Draw on knowledge to support opinions and explore alternative points of view. **Year 6:** Construct a detailed argument or complex narrative. To be able to read a room or group and act accordingly.

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			Introduce scaffolds for turn taking Use visual aids to support talk e.g. turn taking, builder, and challenger. **Year 2:** To adapt speech to different situations e.g. when talking to an adult/ in assembly as oppose to when speaking to friends. Use appropriate sentence stems when building on the ideas of others or challenging them. To ask specific questions to find out more. To be aware if others haven't spoken and invite them to join the discussion.				
	RESEARCH	**Listen and respond to stories** about scientific processes/ events/ objects.	**Find information** using given sources. e.g. *animals.*	**Select information** from a range of given sources.	**Research** using given sources. e.g. *research different food groups and how they keep us healthy*	**Select information** to support findings. e.g. *research animals*	**Explore relevant information by using a wide range of secondary sources.** Explore how scientific ideas have developed over time. / Identify evidence that has been used to support or refute ideas.
	Oracy skills	Speak loudly enough to be heard and understood. To pronounce words clearly when speaking. *Maintain appropriate eye contact with the listener* Join ideas together using and, because or but. To ask questions. Give a relevant answer when asked a question.	**Year 1:** To use the appropriate tone of voice in the right context. To speak clearly and confidently in a range of contexts. To ask relevant questions when they haven't understood. To disagree with someone else's opinion. Listens to others and changes their mind based on what they have heard.		**Year 3:** Choose specialist language and vocabulary appropriately. Make precise language choices. Explain opinions which aren't their own during a debate. To be able to summarise a discussion. To reach a shared agreement during a discussion. **Year 4:** To use carefully considered words and phrases which matches the		**Year 5:** Draw on knowledge to support opinions and explore alternative points of view. Listen for extended periods of time. **Year 6:** Vary sentence structures and length for effect when speaking Construct a detailed argument or complex narrative.

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		Listen to a friend and respond with an appropriate comment. To take turns in a conversation with a friend, adult or working in a group. Look at the other person during a conversation.	Organise a group discussion without adult support. Take part in group discussions. Scaffold turn taking e.g. pass talk around a circle, talking object. Introduce scaffolds for turn taking Use visual aids to support talk e.g. turn taking, builder, challenger. **Year 2:** To start to use gestures to support ideas e.g. gesturing towards someone if they are referencing them. To adapt speech to different situations e.g. when talking to an adult/ in assembly as oppose to when speaking to friends. To ask specific questions to find out more. To speak to people, asking them questions with a purpose. E.g. interview a grandparent about historical questions.		purpose of the talk. To give evidence for their opinions. Consider the impact of their words on others when giving feedback. To work collaboratively to solve a problem.			
	MODEL	**Concrete** context. Create drawings and models of their environment	**Concrete** context Draw diagrams e.g. *parts of plants/ the body.*	**Explore** and **create** drawings and physical models e.g. *habitats.*	**Abstract** contexts e.g. processes and phenomena such as forces/ light. **Use** labelled diagrams and drawings and physical models.	**Abstract** contexts e.g. processes and phenomena such as sound/ electricity. **Create** labelled diagrams and drawings and physical models.	**Abstract** contexts. **Evaluate** diagrams/ models e.g. states of matter; solar system.	**Abstract** contexts. **Create** own versions of models. e.g. circulatory system; light.
	Oracy skills	Use talk during play to practice new vocabulary. Give a relevant answer when asked a question. Look at the other person during a conversation. Visits, time spent with buddy	**Year 1:** To pronounce a wide range of words correctly when speaking. To use vocabulary appropriate to the specific topic To try out new words.		**Year 3:** Choose specialist language and vocabulary appropriately. Make precise language choices. To be able to summarise a discussion.		**Year 5:** Draw on knowledge to support opinions and explore alternative points of view. **Year 6:** Construct a detailed argument or complex narrative.	

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		class to practise speaking to unfamiliar adults.	To ask relevant questions when they haven't understood. **Year 2:** To start to use gestures to support ideas e.g. gesturing towards someone if they are referencing them. Identify the audience and begin to target talk which might interest them.		To reach a shared agreement during a discussion. **Year 4:** To use carefully considered words and phrases which matches the purpose of the talk. Consider the impact of their words on others when giving feedback.	
	CONCLUDE	**Explain** simple phenomena: How? Why?	**Describe** what has happened or been observed.	**Explain** why a simple observation occurred. **Evaluate** the effectiveness of observations.	**Explain an observation or an event in scientific terms.** Distinguish between what has been observed and why it happened. Begin to link evidence from secondary sources as well as primary. Suggest improvements.	**Evaluate original hypothesis against observed evidence and reach appropriate conclusions.** Identify causal relationships. Begin to identify how reliable the data is.
	Oracy skills	Speak loudly enough to be heard and understood. To pronounce words clearly when speaking. *Maintain appropriate eye contact with the listener* Join ideas together using and, because or but. Give a relevant answer when asked a question. To describe in detail events that have happened to them. To take turns in a conversation with a friend,	**Year 1:** To use the appropriate tone of voice in the right context. To speak clearly and confidently in a range of contexts. To pronounce a wide range of words correctly when speaking. To use vocabulary appropriate to the specific topic To use conjunctions such as firstly, secondly, finally to organise and sequence ideas. To give reasons for their opinions. To explain events in chronological order. To speak in front of a larger audience (e.g.		**Year 3:** Vary tone of voice in order to convey meaning, e.g. sad tone for a sad part of the story. Changes position and posture when addressing an audience. Make precise language choices. To be able to summarise a discussion. To reach a shared agreement during a discussion. Adapt the content of their speech for a specific audience. Speak confidently in front of an audience. Take on an expert role e.g. deliver a talk, explain to visiting parents/ buddy class children.	**Year 5:** Project their voice to a large audience Use increasingly natural gestures. Listen for extended periods of time. Speak with passion about a topic which is important to them. Enter a debate competition Sentence stems with visuals for bringing the conversation back on track. **Year 6:** To speak fluently in front of an audience. To have a stage presence.

		adult or working in a group. Look at the other person during a conversation. To speak to a partner during whole class teaching. Opportunities to talk for an extended period about something which interests them.	assemblies, the nativity, Mass) . Watch themselves speak on a recording and reflect on it. **Year 2:** To start to use gestures to support ideas e.g. gesturing towards someone if they are referencing them. To adapt speech to different situations e.g. when talking to an adult/ in assembly as oppose to when speaking to friends. Use appropriate sentence stems when building on the ideas of others or challenging them. To build on other people's ideas during discussions. Identify the audience and begin to target talk which might interest them. To be aware if others haven't spoken and invite them to join the discussion.	**Year 4:** Consider how they might move when speaking to an audience. Use pauses for effect when presenting e.g. when telling a joke. To use carefully considered words and phrases which matches the purpose of the talk. To give evidence for their opinions. Empathise with the audience. Consider the impact of their words on others when giving feedback. Speak in front of large audiences for a specific purpose. Receive feedback from peers/ audience member	Consciously adapt tone, pace and volume of voice within a situation. Vary sentence structures and length for effect when speaking Vary sentence structures and length for effect when speaking To use humour effectively. To be able to read a room or group and act accordingly. Speech to peers and adults.