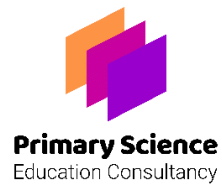




Examples of Work

Hamza

Sound - Year 4





Year

4

Topic

Sound

Focus of assessment (National Curriculum statements)

- Identify how sounds are made, associating some of them with something vibrating.

Description of activity

The children participated in a carousel of activities to make observations when making sounds. In each case, they could see and/or feel the vibrations and link these to the sound produced.

EVIDENCE OF LEARNING

ASSESSMENT

Oral evidence

Examples of work

Knowledge


	What did you see?	What did you hear?	What did you feel?
Tap a drum with bird seed on it. Experiment with different amounts of force.	I saw the stick stick I saw when I hit the drum with stick hard it vibrated spread out.	I heard the stick stick vibrate and it carried on.	I felt the drum stick vibrate when I hit it lightly and I put my fingers on it, it vibrated a little bit.
Tap a tuning fork against a hard surface and the quickly place it in a container of water.	I saw when I hit the tuning fork the bench and put it in the water it ripples it out.	I heard vibration when I hit the bench. It was high pitch.	I felt vibration when I held the tuning stick.
Wind string, attached to a coat hanger, around your index fingers and put the fingers in your ears. Now dangle and gently hit the coat hanger against different objects.	I saw the hammer hit the table and it vibrated.	It heard was like a bell, it was loud and it felt heavy. The noise was quite long.	I felt the hanger vibrate. It was like a low pitch.

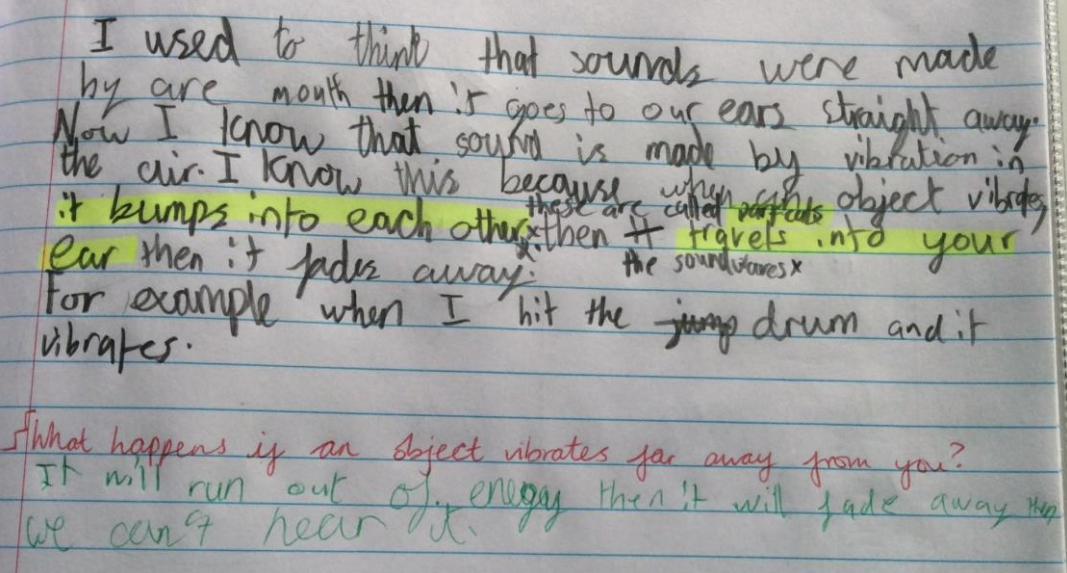
Hamza is beginning to associate sounds with vibrations. This is not yet secure and needs further consolidation. He is also able to use appropriate language to describe different sounds.


Working scientifically

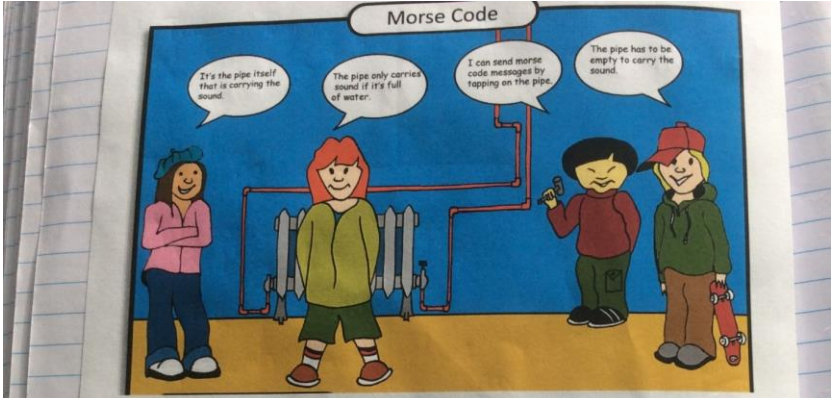
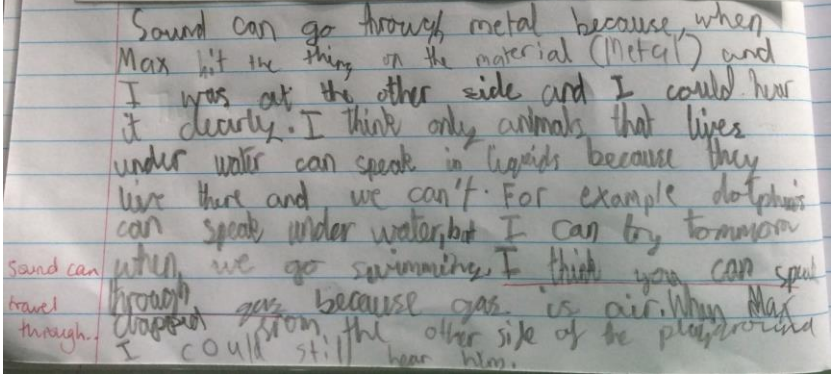
Teacher observations


Hamza uses the key vocabulary - vibrates, vibrations, high pitch, low pitch and long.

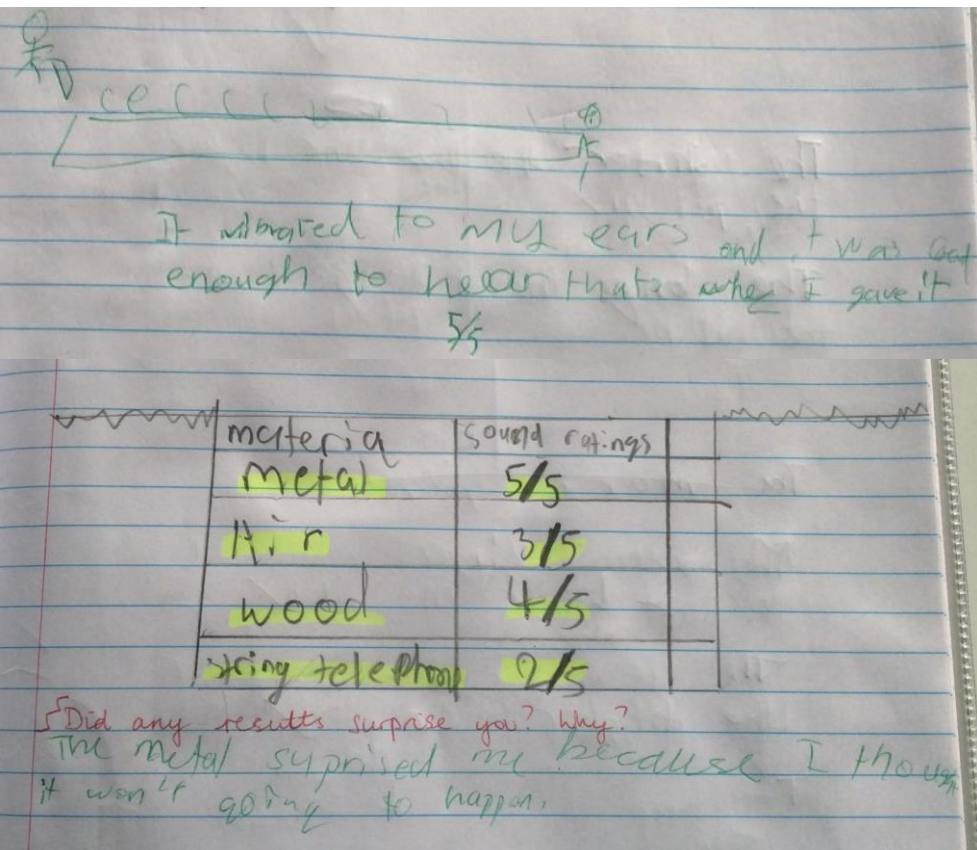
	Year	4	Topic	Sound
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Identify how sounds are made, associating some of them with something vibrating. 			
	Description of activity			
	The children were asked to say how their ideas about sounds had changed.			


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
Teacher observations		Hamza shows that he now understands that sounds are made by vibrations.
His response to the marking shows that Hamza knows that sounds fade, but he has not explained this in terms of the strength of the vibrations.		This first statement is met but, at the moment, he only associates the vibrations with air.
		Working scientifically

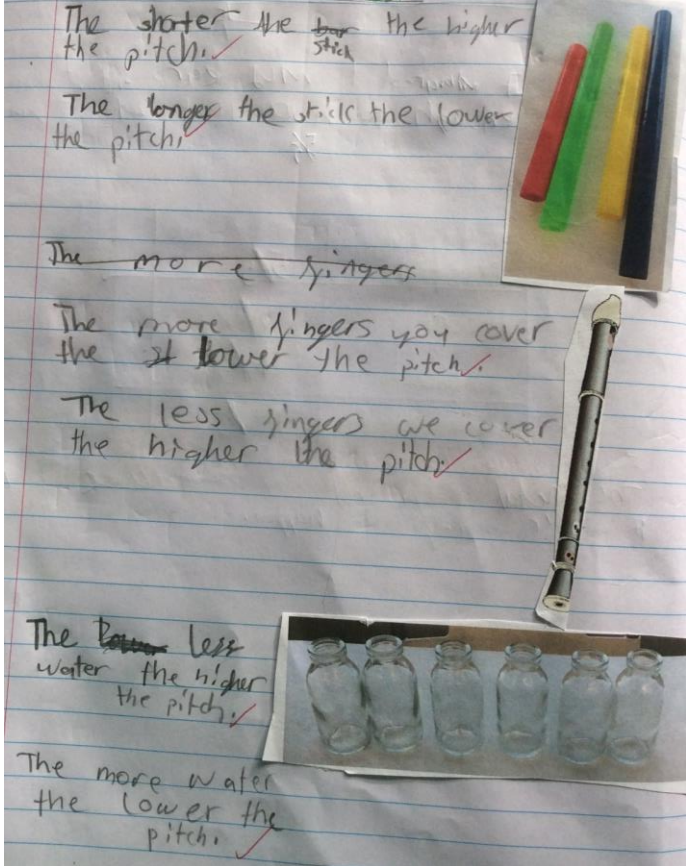
	Year	4	Topic	Sound
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Recognise that vibrations from sounds travel through a medium to the ear. 			
	Description of activity			
<p>The children discussed the concept cartoon and then investigated whether sounds could travel through solids, liquids and gases. They went outside to explore; tapping wood and metal structures and seeing if they could hear when they put their ears to the other end. They also used string tin phones and investigated how the sound of clapping travelled across the playground.</p>				


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
<p>"I could hear Max whisper using the string telephone. The vibrations were going down the string. I could feel them with my fingers. It wasn't as good as the metal though."</p>		<p>This writing and his oral comments show that Hamza now understands that vibrations from sound can travel through solids, liquids and gases to the ear.</p>
Teacher observations	Examples of work	Working scientifically
<p>When discussing the concept cartoon, before going out, Hamza thought he would hear the sound regardless of whether the radiator was full or not as the vibrations would travel through the air to his ear.</p>		<p>Hamza has thought of a way to answer his own question.</p>

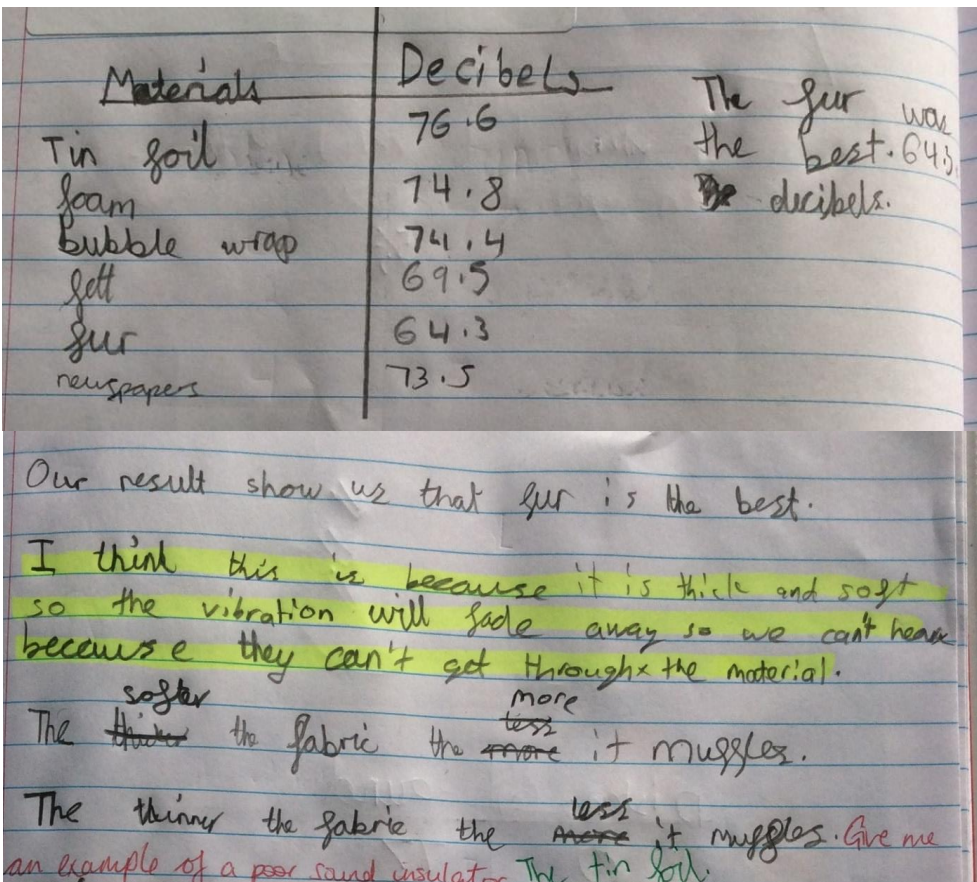
	Year	4	Topic	Sound
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Recognise that vibrations from sounds travel through a medium to the ear. 			
	Description of activity			
	The children were asked to record the evidence gathered during their exploration.			


EVIDENCE OF LEARNING		ASSESSMENT										
Oral evidence	Examples of work	Knowledge										
	 <p>It vibrated to my ears and it was loud enough to hear that's why I gave it 5/5</p> <table border="1"> <thead> <tr> <th>material</th> <th>sound ratings</th> </tr> </thead> <tbody> <tr> <td>metal</td> <td>5/5</td> </tr> <tr> <td>Air</td> <td>3/5</td> </tr> <tr> <td>wood</td> <td>4/5</td> </tr> <tr> <td>string telephone</td> <td>2/5</td> </tr> </tbody> </table> <p>Did any results surprise you? why? The metal surprised me because I thought it wasn't going to happen.</p>	material	sound ratings	metal	5/5	Air	3/5	wood	4/5	string telephone	2/5	
material	sound ratings											
metal	5/5											
Air	3/5											
wood	4/5											
string telephone	2/5											
Teacher observations		Working scientifically Hamza chooses to grade the loudness (volume) of the sound out of 5. He draws his own table adding appropriate headings in order to record his findings.										

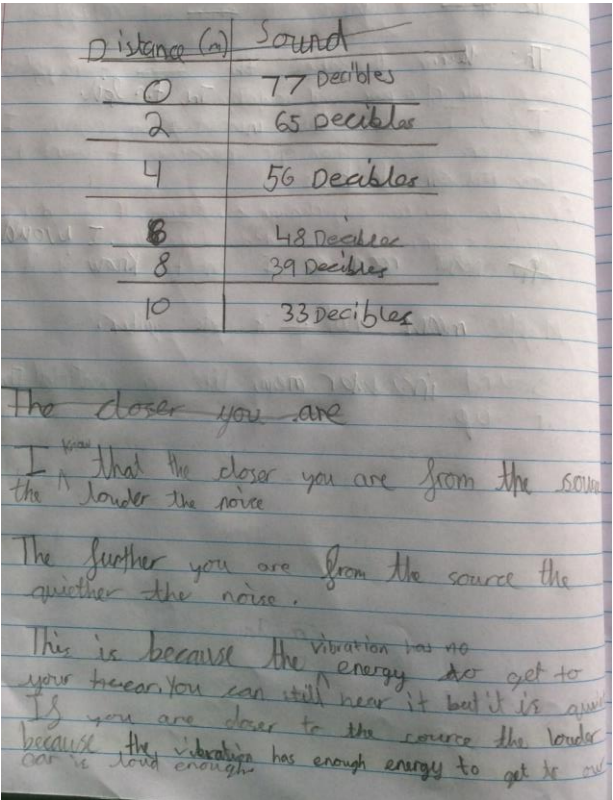
	Year	4	Topic	Sound
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Find patterns between the pitch of a sound and features of the object that produced it. 			
	Description of activity			
	The children investigated various musical instruments and objects to explore the pattern between the pitch of the sound and the instruments' features. They then recorded the patterns they observed in their books.			


EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
<p>"When we plucked the guitar, we noticed that the thicker strings made the lower-pitched sound and the thinner strings made the higher-pitched sound. I think it also depends how tight the strings are."</p>		<p>Hamza identifies patterns between the pitch of the sound and the features of the object.</p>
Teacher observations		Working scientifically

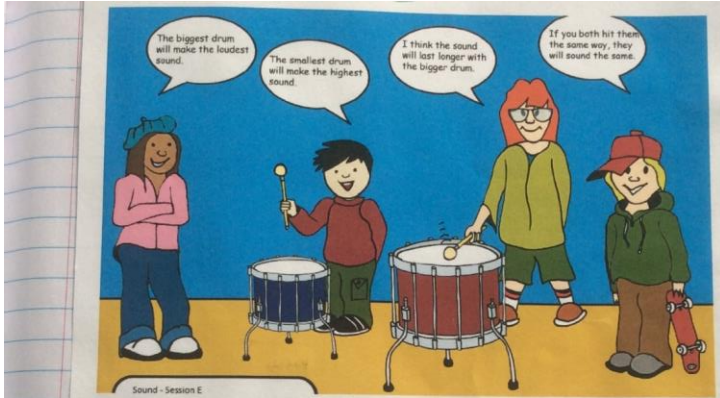
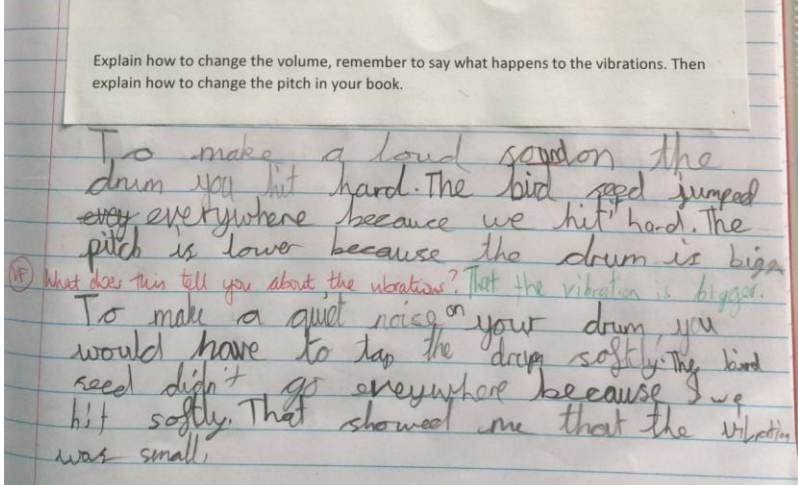
	Year	4	Topic	Sound
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Recognise that vibrations from sounds travel through a medium to the ear. 			
	Description of activity			
	The children were asked to consider how they could muffle a loud sound. They were given a range of fabrics to consider using.			


EVIDENCE OF LEARNING		ASSESSMENT														
Oral evidence	Examples of work	Knowledge														
	 <table border="1"> <thead> <tr> <th>Materials</th> <th>Decibels</th> </tr> </thead> <tbody> <tr> <td>Tin foil</td> <td>76.6</td> </tr> <tr> <td>foam</td> <td>74.8</td> </tr> <tr> <td>Bubble wrap</td> <td>74.4</td> </tr> <tr> <td>felt</td> <td>69.5</td> </tr> <tr> <td>fur</td> <td>64.3</td> </tr> <tr> <td>newspapers</td> <td>73.5</td> </tr> </tbody> </table> <p>The fur was the best. 64.3 decibels.</p> <p>Our result show us that fur is the best.</p> <p>I think this is because it is thick and soft so the vibration will fade away so we can't hear because they can't get through the material.</p> <p>The ^{softer} thicker the fabric the ^{more} more ^{less} it muffles.</p> <p>The thinner the fabric the ^{less} more it muffles. Give me an example of a poor sound insulator. The tin foil.</p>	Materials	Decibels	Tin foil	76.6	foam	74.8	Bubble wrap	74.4	felt	69.5	fur	64.3	newspapers	73.5	<p>This is another example of Hamza showing that he now understands that vibrations can travel through materials other than air.</p>
Materials	Decibels															
Tin foil	76.6															
foam	74.8															
Bubble wrap	74.4															
felt	69.5															
fur	64.3															
newspapers	73.5															
<p>Teacher observations</p> <p>Hamza's group decided to test the different materials whereas other groups changed the number of layers of one material. His group used a data logger to measure the sound.</p>		<p>Working scientifically</p> <p>Hamza constructs a simple table to record his evidence. He reports on his findings and draws simple conclusions.</p>														

	Year	4	Topic	Sound
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Recognise that sounds get fainter as the distance from the sound source increases. 			
	Description of activity			
<p>The children listened to an audio clip of a train going past. They discussed how it got louder as it approached and then quieter again as it got further way. They were asked to think about their personal experiences of this. They were asked to gather scientific evidence to back up their observations. In the playground, the teacher tapped a triangle and the group had to decide how to take appropriate measurements.</p>				

EVIDENCE OF LEARNING		ASSESSMENT														
Oral evidence	Examples of work	Knowledge														
<p>"My mum always gets cross with me because I don't hear her calling me for dinner when I'm in my bedroom. That's because I'm upstairs."</p>	 <table border="1"> <thead> <tr> <th>Distance (m)</th> <th>Sound</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>77 Decibels</td> </tr> <tr> <td>2</td> <td>65 Decibels</td> </tr> <tr> <td>4</td> <td>56 Decibels</td> </tr> <tr> <td>6</td> <td>48 Decibels</td> </tr> <tr> <td>8</td> <td>39 Decibels</td> </tr> <tr> <td>10</td> <td>33 Decibels</td> </tr> </tbody> </table> <p>The closer you are I know that the closer you are from the source the louder the noise The further you are from the source the quieter the noise. This is because the vibration has no energy to get to your hear. You can still hear it but it is quiet. If you are closer to the source the louder because the vibration has enough energy to get to our ear is loud enough.</p>	Distance (m)	Sound	0	77 Decibels	2	65 Decibels	4	56 Decibels	6	48 Decibels	8	39 Decibels	10	33 Decibels	<p>Hamza gathers data to show that sounds get fainter the further away you are from the sound. He identifies the pattern and gives a simple explanation of why this happens.</p>
Distance (m)	Sound															
0	77 Decibels															
2	65 Decibels															
4	56 Decibels															
6	48 Decibels															
8	39 Decibels															
10	33 Decibels															
<p>Teacher observations</p> <p>Hamza suggested to his group that they could test this by measuring the sound at different distances.</p> <p>They were careful to stop when there were other sounds, i.e. airplanes and sirens.</p>		<p>Working scientifically</p> <p>Hamza constructs a simple table to record his evidence. He reports on his findings and draws simple conclusions.</p>														

	Year	4	Topic	Sound
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Find patterns between the volume of a sound and the strength of the vibrations that produced it. 			
	Description of activity			
	The children discussed their ideas about the concept cartoon. They then investigated banging drums for themselves.			

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
	 <p style="font-size: small;">Sound - Session E</p>	<p>Hamza identifies patterns between the volume of the sound, the size of the force used and the size of the vibrations.</p> <p>He also shows he understands the difference between pitch and volume and demonstrates again that the pitch is associated with the features of the object producing the sound, in this case the drum.</p>
Teacher observations	<p>Explain how to change the volume, remember to say what happens to the vibrations. Then explain how to change the pitch in your book.</p> 	Working scientifically

	Year	4	Topic	Sound
	Focus of assessment (National Curriculum statements)			
	<ul style="list-style-type: none"> Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. 			
	Description of activity			
	The teacher asked Hamza to explain how to change the pitch and volume of the sound produced by plucking a guitar string.			

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
		Hamza demonstrates and explain how to change both the pitch and volume of the note produced by a guitar. He uses comparative language to describe the patterns.
Teacher observations		Working scientifically
	Click here to watch video.	Hamza draws simple conclusions based on his observations and his subject knowledge.



Overall summary

Secure

Hamza has experienced a range of hands-on exploration activities that have helped him to understand how sounds are produced by vibrations which can travel through different mediums to the ear. He has consistently demonstrated his use of the key vocabulary and can talk about how the features of an object affect the pitch of the sound produced and how the strength of the vibration affects the volume. He has been given the opportunity to use this knowledge during different activities. He successfully decided how to take measurements using a data logger to provide evidence that sounds get fainter as the distance from the sound source increases.



Acknowledgements

- *Concept cartoons from Hamilton Trust*