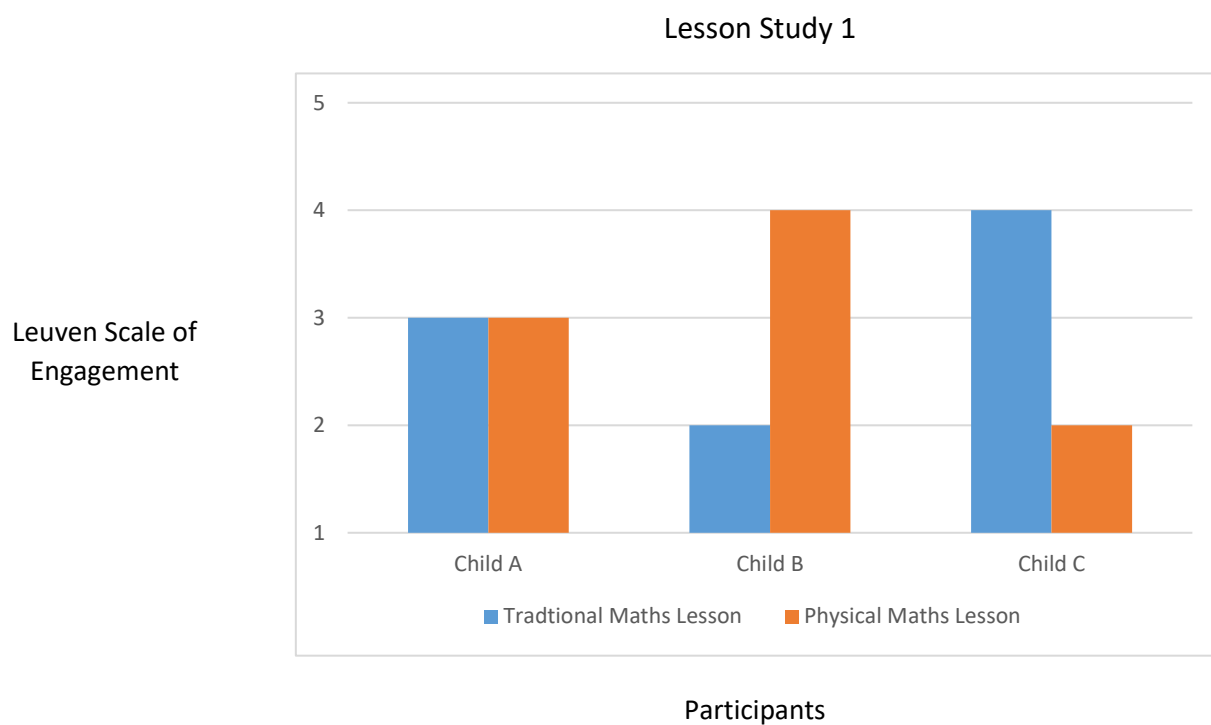
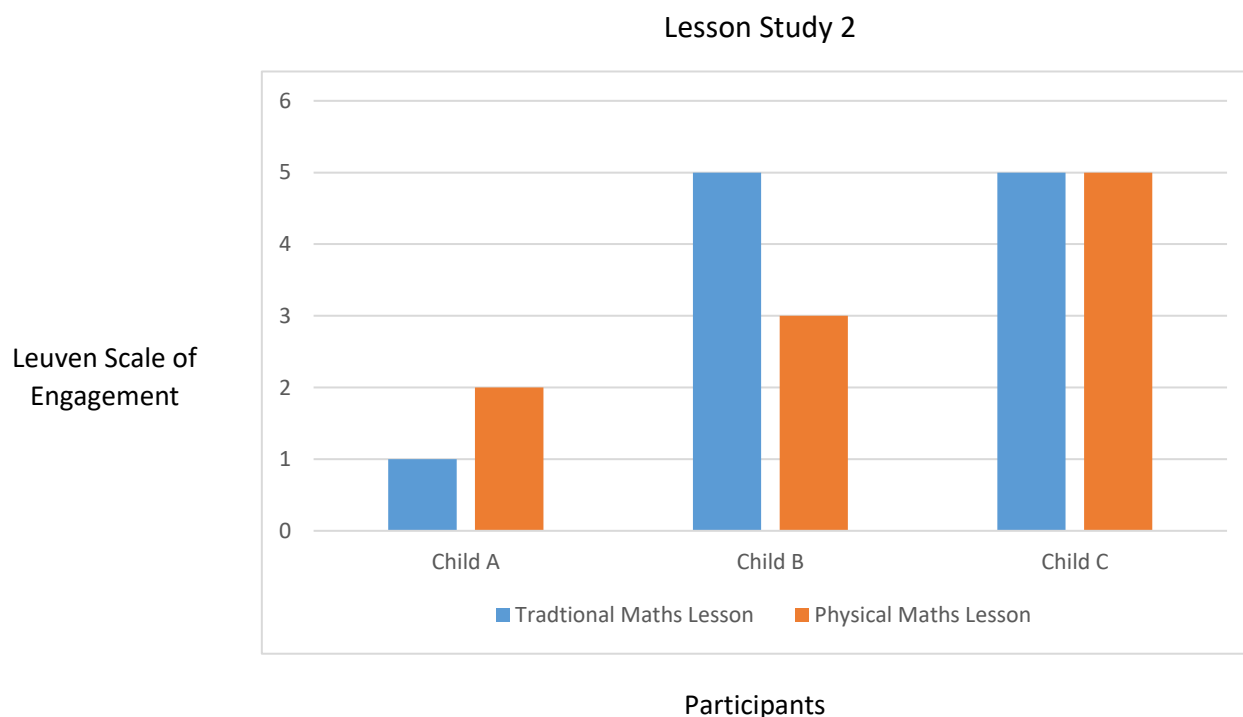


Pupil Engagement during a Physical Mathematics Lesson (According to the Leuven Scale of Engagement)



Pupil Engagement during a Physical
Mathematics Lesson (According to the Leuven Scale of Engagement)



83.3% of the focus group showed an increased level of engagement.

Appendix 2

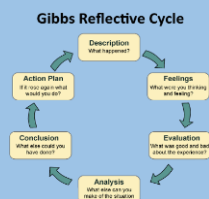
Lesson Study 1 and 2 Lesson Plans

Name of Trainee: Lesson Study One		Date: 20/02/19	Class: School A	Cynllun Ffocws y Cyfnod Sylfaen	
Number of learners: 24 (Year 1= 17, Year 2= 7)				2d	
Age: Year 1 and Year 2					
Learning Objective:	To name and identify the properties of 3D shapes	Success Criteria:	- I can name 3D shapes - I can identify the properties of 3D shapes - I can count accurately		
Introduction/ Plenary tasks		Main activities		Resources/ Key Vocabulary	
				Assessment for Learning (strategies and opportunities)	
<u>Introduction</u> Take the class outside onto the Muga court for the lesson. Ask pupils to take 10 steps ensuring they can be heard counting (remind pupils that if they can't be heard they will have to start again. Repeat getting pupils to hop, march, tiptoe, spacewalk a different number of steps.		<u>Trainee focused task</u> (purpose, outline of trainee's role and children's learning): Ask pupils what shapes they have been learning about (3D shapes). In their groups ask pupils to make a 2D shape, reminding pupils they must stay standing up and not lie on the floor). Go round and ask a different group how many corners their shape has and how many edges. Repeat with several 2D shapes. Ask pupils to hop 5 steps and work with the pupil closest and name the 3D shapes we have been looking at. Give pupils 1 minute to think of the different shapes and ask random groups to name a shape. Ask pupils to count in 1's how many steps to get to a cube shape (picture card, shape or object)- remind pupils that if they can't be heard counting they will have to start again. To encourage pupils not to just follow their peers a special sticker will be given to pupils if there are two or less children at the shape. Repeat asking them to find a different cube. Repeat with a cuboid, cylinder, sphere and cone. Ask pupils what are the properties of the shape (E.g curved/flat face, number of faces, shape or faces, number of edges, number of corners). Ask pupils to walk, hop, tiptoe, march or spacewalk to a shape which has flat faces, a curved face, 6 faces, 3 faces, 1 face, 2 faces, square shaped face, circle faces, rectangle faces, 8 corners, 0 corners, 6 corners, 1 corner.		<u>Resources</u> Whistle 3D shapes 2D shapes 3D shape cards 3D shape property cards <u>Key Vocabulary</u> 2D shape 3D shape Square Circle Triangle Rectangle Cube Cuboid Cone Cylinder Sphere Faces Edges Corners Vertex (Year 2) Vertices (Year 2)	
<u>Plenary</u> Mixed ability groups, standing in ability order. Play a game where each group has a picture of a shape. On the other side of the playground are various different shape properties. One pupil at a time to walk, no running to choose their shapes name or a property and walk back. Once they are back the next pupil in their group can go. Keep going until they think they have got all their shapes properties.				<u>Questioning</u> Observe pupils during the activity to assess how each individual pupil are doing and if more support is required. <u>Welsh</u> <u>Bendigedig</u> <u>Da iawn</u> <u>Pwy sy'n barod?</u> <u>Edrychwch arna i</u> <u>Pa siap?</u> <u>Sawl un?</u>	

Name of Trainee: Lesson Study Two		Date: 21/02/19	Class: School B	Cynllun Ffocws y Cyfnod Sylfaen	
Number of learners: 32 (Year 2= 32)					
Age: Year 2		2d			
Learning Objective:	To name and identify the properties of 3D shapes	Success Criteria:	- I can name 3D shapes - I can identify the properties of 3D shapes - I can count accurately		
Introduction/ Plenary tasks		Main activities		Resources/ Key Vocabulary	Assessment for Learning (strategies and opportunities)
<u>Introduction</u> Take the children into the hall for the lesson. Ask pupils to split into two teams and stand in two straight lines opposite one another. Explain to the class that they need to listen out for their number, once its called they can race the person opposite. <i>First one to get the cone wins and the team with the most cones at the end is the winner.</i>		<u>Trainee focused task (purpose, outline of trainee's role and children's learning):</u> Class to remain in their warm up teams for the main task. Children to run to a box of 3D and 2D shapes in a relay style, collect a shape and take it to the opposing teams hoop. Once all children have ran twice, blow the whistle and tell them that they need to sort their shapes. Ask children to work in a team to list the properties of their shapes and sort them into a Venn diagram. E.g. flat faces, a curved face, 6 faces, 3 faces, 1 face, 2 faces, square shaped face, circle faces, rectangle faces, 8 corners, 0 corners, 6 corners, 1 corner.		<u>Resources</u> Whistle 3D shapes 2D shapes Hoops Whiteboard and pens <u>Key Vocabulary</u> 2D shape 3D shape Square Circle Triangle Rectangle Cube Cuboid Cone Cylinder Sphere Faces Edges Corners Vertex Vertices	<u>Questioning</u> Observe pupils during the activity to assess how each individual pupil is getting on and if more support is required. <u>Welsh</u> <u>Bendigedig</u> <u>Da iawn</u> <u>Pwy sy'n barod?</u> <u>Edrychwch arna i</u> <u>Pa siap?</u> <u>Sawl un?</u>
<u>Plenary</u> Each group is given a picture of a shape. On the other side of the hall are various different shape properties. One pupil at a time to run to choose their shapes name or a property and walk back. Once they are back the next pupil in their group can go. Keep going until they think they have got all their shapes properties.					

Appendix 3Reflection Pro-forma

Self: A personal reflection of what I observed during the lesson using Gibbs Reflective Cycle.



Students: A reflection from the pupils from their personal perspective. This will be gathered using interview questions.

Peers: A reflection from partner who observed the lesson. This will be shared in the form of an interview which will be audio recorded so that it can be referred to during the write up.

Scholarship: Theoretical literature will be analysed and linked to the findings of the lesson study. This will be referenced and critiqued during the write up of the lesson study.

Gibbs Reflective Cycle (1988) used within Brookfield's Four Lenses (1998).

Level	Engagement	Signals	Specific Signs of Engagement
1	Extremely low	Activity is simple, repetitive and passive. The child seems absent and displays no energy. They may stare into space or look around to see what others are doing.	No movement Disruptive behaviour No interaction with adult/peer No understanding of instructions
2	Low	Frequently interrupted activity. The child may be engaged in the activity for some time they are observed, but there will be moments of non-activity when they will stare into space or be distracted by what is going on around them.	Off task Disruptive behaviour Distracted by environment/distracting others Minimal interaction Limited understanding of task – follows peers Unsure of instructions
3	Moderate	Mainly continuous activity with intense moments. The child is busy with the activity but at a fairly routine level and there are few signs of real involvement. They make some progress with that they are doing but don't show much energy and concentration and can be easily distracted.	Adequate level of interaction and engagement Offers some support to peers Few signs of real involvement Lack of energy/concentration/motivation
4	High	Continuous activity with intense moments. The child's activity has intense moments and at all times they seem involved. They are not easily distracted.	Good level of interaction and engagement Follows instructions promptly Uses knowledge of numbers to find correct puddle On task Manages distractions
5	Extremely high	The child shows continuous and intense activity revealing the greatest involvement. They are concentrated, creative, energetic and persistent throughout nearly all observed period.	Excellent level of interaction and engagement Oblivious to peer decisions and conversations Independent Confident in decision making