

GR_Class_ShapeTrees_Question

Teacher Education Design Principle + code:	11. Teacher education should enable teachers to use questioning effectively and encourage children's questions in order to foster creativity and inquiry. TE: Question
Specific Teacher Outcome(s):	11.1 Teacher should be able to use different forms of questioning at appropriate points to scaffold creative learning outcomes in science and mathematics, and in particular to encourage children's reflections and explanations, foster their independence and extend their inquiry.
Factors linked with:	P: Ques; P: Scaff; P: R and R
Type of material (image – interview (int) – classroom extract (class):	Class
Originating from:	
Country report :	D4.3 Greece
Case:	Case 1 - Mina
Episode:	1 – Shape trees
Teacher:	Mina
Age Group:	5-6

Encouraging children's reflections through questioning

In this classroom extract, children had to gather objects from around the classroom ('The shape hunt'), discuss their shape with the teacher, comment on specific shapes' mathematical properties and finally make 'shape trees' using paper and a variety of other material. This activity illustrates the ways in which the teacher sought first to support children in becoming familiar with shapes and their properties using everyday objects and get them to construct a depiction of a tree.

Children were split up into 4 teams Mina told the children: *'I will tell you what I would like from you and you can then go about it your own way. Do whatever you want.'* Each team was assigned a colour and the only instruction provided by Mina was for children to find objects that are the same colour as their team's and bring them back to her. The children were given 3 minutes to do so and at the end a variety of shapes was brought back to the tables. Mina then asked the children to share their findings with the rest of their classmates. The children had to raise their hand to speak and after that they had to name their shape. Mina then asked them questions to assess their knowledge of shapes. The questions used by Mina during this activity were almost identical for each of the children. She started off by asking *'what is this?'* and continued by asking *'how do you know?'* Her final question was *'How did you reach this conclusion?'* and was aimed at children using both their language skills and their bodies to show what they were talking about.

Mina: Let us now hear from the yellow team. Were you good investigators?

All: Yes we were.

Mina: Let us see what you are here to present to the rest of us. Tell what you found or you think you found. N?

N: This is a circle.

Mina: How do you know?

N: It is round.

Mina: What does everybody else think? Do you agree with N? Is that the name of this shape?

All: Yes.

Mina: Do we see shapes like that around us?

Ni: It is the shape of the planet Earth.

Mina: Oh is that right?

A: I have two more shapes. Circle and square

Mina: A has two shapes in her hands. Lift them up so everybody can see. A, what makes you say that these are a circle and a square?

A: One shape does not have any...

Mina: What does one shape not have?

A: The circle does not have any sides while the square has four.

Mina: Did everybody hear A?

All: Yes.

A: Four identical sides.

Mina: Oh that is a nice observation. Can all of you see that?

All: Yes we can.

Mina: D, you also have two shapes.

D: Yes they are a circle and a triangle.

Mina: How did you reach to the conclusion that they are a circle and a triangle?

D: Because the triangle has three angles while the circle does not have any.

M: I also have a triangle.



Mina: How can you be sure?

M: It has three sides and three angles.

When talking about the rectangle (presented by V), D mention that it has 4 right angles.

D: There are 4 four right angles

Mina: How did you come to this conclusion?

D: The angles are 'longer' than the other angles (*forming a right angle with his hands*)

Mina: What is the shape called?

D: It's called rectangle (*orthogonio in Greek*). Right (*ortho in Greek*) and angles (*goni-es in Greek*)

Mina: So we have a word that is made up from two other words, right?

D: Yes. Ortho and gonio.

Mina: Very good.

D: And if you change it you can make it into a square. If you go like this (*showing that the longer two parallel sides should be shortened to equal the remaining two sides*).



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