

Teacher Education Design Principle + code:	6. Teacher education should provide pedagogical content knowledge to stimulate inquiry and problem solving in science and mathematics education. TE: IBSE
Specific Teacher Outcome(s):	6.2 Teachers should be able to open up everyday learning activities to allow greater opportunities for inquiry, problem solving and scope for creativity. 6.3 Teachers should be able to recognise the key roles of children’s questioning and existing ideas (both implicit and explicit) of science and mathematics. 6.4 Teachers should be able to use a variety of strategies for eliciting and building on children’s questions and ideas during inquiry processes (before, during and after explorations and investigations). 6.5 Teachers should be able to foster opportunities for children’s agency and creativity in learning in inquiry and problem solving – in particular the importance of children making their own decisions during inquiry processes, making their own connections between questions, planning and evaluating evidence, and reflecting on outcomes.
Factors linked with:	AO: Creative; P: Express; P: Agency
Type of material (image – interview (int) – classroom extract (class):	Classroom extract (class), image
Originating from:	
Country report :	D4.3 – Report Romania
Case:	Case 1
Episode:	Float and sink
Teacher:	Maria
Age Group:	5-6
Selected episode present in D4.4 Appendix	Yes

Through story telling the teacher tries to induce creative dispositions to pupils. The development of creativity is specifically planned. Diverse forms of expression are valued, and children's agency is encouraged.

The teacher starts the lesson with a story about the diligent little ant living in the forest. The little ant is looking for food. The ant arrived near the creek and dropped into water. A dove flying around saw what happened and came to help the ant. Children are asked 'How can the dove help the ant?'

T: What do you think the dove had done to save the ant?

Ch1: It took her with its beak.

Ch2: It does not work; dove's beak is too strong.

T: Then the dove looked around to find something to help the ant out of the water. I wouldn't tell you what it found. I shall leave you to guess what it used. You have to discover what is the object dove used.

Ch3: Let me tell you. I know what it is about. The dove helped the ant with its feet. With its paws

T: Let's pay attention. Where was the ant? Where was located its mound?

Ch4: At the edge of the forest.

T: What do you think the dove can find in the forest to help the ant?

Ch3: A liana.

T: That is a stick?

Ch1: It was a stick, a small stick. The dove can place it below the ant and lift it up and place it on the stone.

T: An idea came from D. The dove has to take a small stick with its paws or the beak, and throw it in the water near by the ant.

Ch5: The dove keeps the stick in its beak and gives it to the ant and draws the ant from the water.

Ch1: The dove takes a stick with a hole inside and places it in front of the ant, and the ant goes inside and comes out.

Additional children's ideas:

T: Your ideas were to use sticks and leaves. There is anything else in the forest?

Ch1: Stones, and soil.

T (*taking a stone from a container*): Let me see. We have here some rocks. But what do you think about this item (*showing conifer cone*)? Or this one (*indicating a acorn*)?

Several Chs: Wow!!!

Ch6: How small it is.

Ch2: It can float on the acorn and go to the shore.

T: Would you like to try your idea? She would like to test if the ant could not climb on the acorn and float on the water.

Ch1: The bird takes a nut from a tree, breaks it and takes out the all the kernels and the ant climb on the shell and goes to the shore.

T: OK. What else do we have here (*showing a piece of bark*)? Can we find this in the forest?

Several Chs: Yes.

Ch3: You can float on it to the shore.

T: OK. Let me see. Or may be you would like to look for something to test.

creative little SCIENTISTS

Additional data: In the second part of the lesson, the teacher offered a selection of materials which can be found in the forest and asked children to select some of them based on their hypothesis and test if these materials float or sink.

Children are engaged into identifying and naming the objects they find in the container. Children discuss in group and test if some of these materials can be considered to build a boat. They receive also worksheets on which they have to draw or write their results, so they can indicate which materials can float and save the ant. Worksheets are filled individually with drawings or text.



According to their skills, children run and investigation and fill the distributed worksheets, by writing or making a drawing



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