
Wooden Triangles



What's it about?

The Material

These are equilateral triangles made out of felt with edges measuring 5 cm. They are in three different colours: orange, red and green.

The triangles encourage laying flat patterns such as friezes and parquetry.

What should be stimulated?

Guiding Principle of Space and Planes

- Constructing concepts to describe positional relationships (beside, above, always in the middle, right, left...), in order to communicate with others about what has been laid.
- Visual perception
- Development of the idea of space
- Seeing, understanding and forming axial symmetry and displacement in figures
- Putting shapes together in a particular relationship
- Parqueting on one plane without gaps
- Comparing surface areas of figures

Guiding Principle of Patterns and Structures

- Sorting
- Designing patterns
- Copying patterns
- Continuing patterns
- Describing patterns



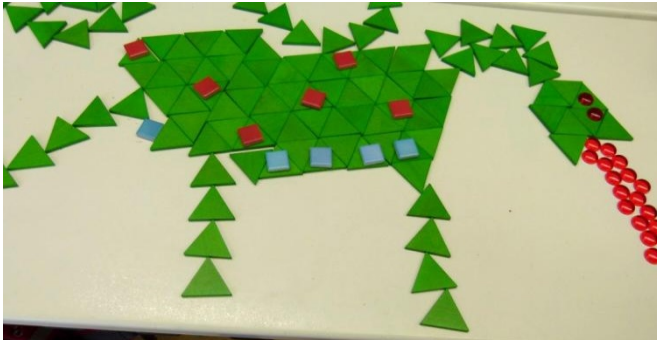
Suggestions for using the materials

Free Access

What can be done?

The children can either work alone or in groups.

The child/ The group works alone with the materials without instructions.



Suggestions for observation

- Is the material sorted according to colour?
- Does the child make abstract or concrete patterns?
- Is the child building on one plane or three-dimensionally?
- Is he/she using all three colours?
- Does the child create a pattern? Does he/she maintain regularities which are started?
- Does the child maintain symmetry?
- Does parquetry or a frieze pattern develop?

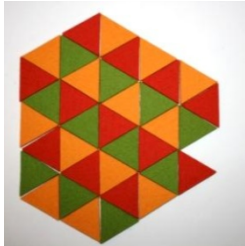
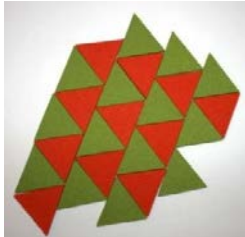
How to continue?

The objects which the children have created can serve as a starting point for further activities.

Starting point The objects or patterns created by the children

Social form Individual or working with a partner

Task



- The child should describe the rules of his/her pattern.
- Another child should copy the pattern.
- Another child should continue the pattern.
- Another child should describe the rules of the pattern formation.
- The child should document the pattern. The picture can be used as a template for other children.
- The created objects and patterns can be photographed. The photos can be made available for further activities:
 - The photo can be used as a template for other children.
 - With the help of paper sections of the pattern can be covered up. The task is then to fill in these “gaps” in an appropriate way.

Suggestions for observation

- Is the child able to describe his/her pattern formation?
- Can the child copy a pattern?
- Can the child continue a pattern? Does he/she recognize the basic underlying rules? Is he/she able to verbalize the rules?

Following Instructions

What can be done?

The children can either work alone or in groups.

Designing, copying and continuing patterns

Material Wooden-Triangles

Task



- The child should create a pattern without gaps either alone or with one other child. The children can develop the “rules of the game” while they are laying the pattern.
- One child creates a pattern. The other child copies the pattern.
- One child creates a pattern. The other child continues the pattern.
- One child creates a pattern. The other child makes a mistake in the pattern. The first child has to correct the mistake.
- One child creates a pattern but his/her partner is not able to see it. He/She then describes the pattern to his/her partner. The partner then tries to create the pattern following the description.

Suggestions for observation

- Is the child/Are the children capable of creating a pattern without any gaps?
- Was the process accompanied by a discussion about “the rules of the game”?
- What do the children talk about/discuss while they are working?
- Are the patterns consistently continued?
- When two children are working together: Is the continuation of the pattern done in the way that the „developer“ intended?
- To the final task: How does the child describe his/her pattern? Do the two patterns look the same at the end? What reasons do the children give for any possible differences?

Building with pictures



Material Triangles, Templates with triangle patterns (photos or drawings from the children themselves or templates prepared by the staff members)

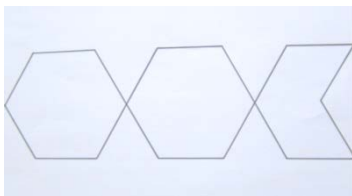
Task

- The child should copy the pattern.
- The child should continue the pattern.

Suggestions for observation

- Is the child able to copy the given pattern?
- Is the child able to continue the given pattern?

Designing or completing templates



Material Triangles, (incomplete) templates

Task

- The child, either alone or together with another child, should use the triangles to fill in a template or complete an incomplete template.

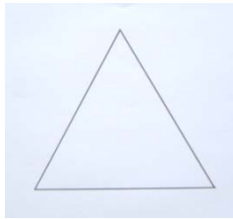
Suggestions for observation

- Can the child/the children successfully complete the given pattern?
- Does he/she maintain initial regularities?
- What do the children talk about/discuss while they are working?
- Are presumptions being made throughout the process about how to lay the triangles?

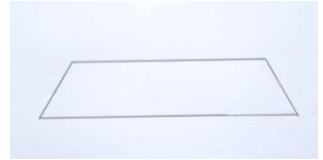
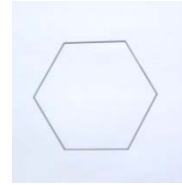
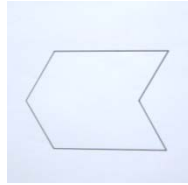
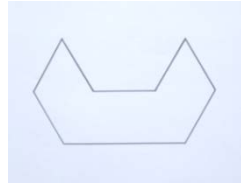
Comparing surface areas using a number of triangles

Material

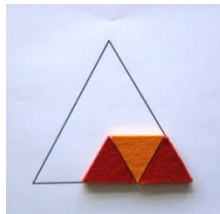
Triangles, Templates with triangle patterns (photos or drawings from the children themselves or templates prepared by the staff members)



Outlines of figures



Task



- The child should determine how many triangles are being used.
- The child should create as many different objects/patterns/forms as possible always using the same number of triangles.
- The child should make an outline by drawing round the objects/patterns/forms.
- The child should arrange several objects or templates according to surface area/the number of triangles being used.
- The child should create an object and position it correctly in this row.
- The child should fill in the outlines with triangles without leaving any gaps.
- The child should initially guess how many triangles a figure requires and then test his/her estimate by creating the figure.
- The child should compare several outlines. Which figure is the biggest? Which is the smallest?
- The child should sort the outlines according to their size.

Suggestions for observation



- Can the child correctly determine the number of triangles?
- How does the child go about determining the quantity?
 - Does he/she count the triangles individually?
 - Does he/she group the triangles together?
 - Does he/she use a particular structure in the object which has been formed? (Eg. the number of hexagons in the pattern or a hexagon made up of six triangles)
- Can the child appropriately arrange several objects according to their surface area?
- Can the child imagine how many triangles will fit into an outline?
- How does the child go about comparing surface areas?
 - Does the child compare the number of triangles one-to-one?
 - Does the child put the triangles from one figure on top of the other?
 - Does he/she count the triangles in two figures and then compare the numbers?
 - Does he/she mentally imagine one figure inside the other?
 - Does he/she look at the outside measurement instead of the number of triangles? Does he/she concentrate on only one dimension (Eg. length and not width)?

Small becomes big (Creating parquetry)

Material Small pattern template



Task

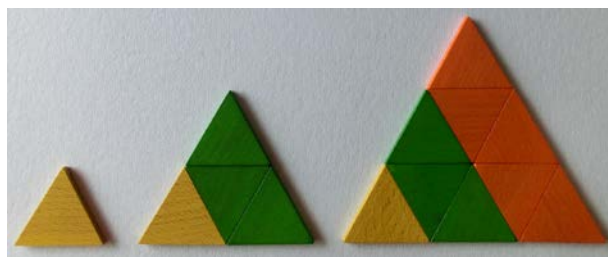
- The child should choose a template.
- The child should use the template to create an area of parquetry.
- A different child should use a template to continue an already started parquetry.
- The parquetry can then be documented (glued, stamped or drawn)

Suggestions for observation

- Can the child do parquetry using the template?
- Is the parquetry free from mistakes?
- How does the child go about doing parquetry?
- Does the child maintain symmetry?
- Is the child able to design his/her own template?

Growing patterns

Material Pattern template



Task

- The child should describe the pattern.
- The child should continue the pattern.
- The child should design his/her own growing pattern.
- Another child should continue the pattern which the first child designed.

Documentation



- Documentation with freehanded drawings outlines of the objects or with help of a stencil.
- Documentation with stamps
- Description/ Presentation of the pattern in text form
- Documentation by glueing paper triangles
- Documentation with the help of photos