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## **Modelling Materials on the Primary School as the Element for an Improvement of Fine Motor Skills and a Support of Creativity**

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### **Abstract**

A work with the modelling material is incorporated in the framework education programme even for the nursery school and also for primary schools. The modelling material is incorporated there for the purpose of the output (managing the hand and eye coordination, managing the fine motor skills). The character of the material, incorporation of a working process, aids and tools for modelling is important in the primary school. Thanks to the characters of the modelling masses (material, variety of colours/colouring) are all these outputs fully supported. We deal with different types of modelling doughs and with their possibilities of the use in primary schools and with creativity testing of children.

**Keywords:** plasticine, technical education, creativity

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### **Introduction**

Every child is familiarized with the modelling dough already in the nursery. With this mass, they can gradually process the material and improve their fine motor skill, hence the techniques of working with mass. However, all modelling materials are not suitable for all age groups. Modelling masses bring support in the teaching to all above mentioned parts. If we do not often include different cutters, extruders and exact procedure, we then develop primarily creativity in children.

Current time offers many types of modelling materials. We can split them according to how do we harden them.

### **Types of modelling materials**

Many factors are important for the modelling materials. One of the main factors is hardening, if it is possible. Further, find out whether the modelling dough can be coloured, if it is not already coloured. Last but not least, we are interested in the price. Some types of modelling materials have significant differences.

When choosing a mass, also find out how hard is the modelling mass for kneading. Some manufacturers started to produce modelling materials directly for children – so they are softened.

We divide masses in:

- Heat hardened,
- Air hardened materials (Self-hardening),
- Permanently plastic.

Categorization is based on the (Honzíková, 2006).

Heat hardened materials are very interesting. Their colour permanency and solidity is sometimes after the hardening long lasting.

We would include modelling clay, Fimo, Cernit. The advantage of these materials is the solidity after hardening. Modelling clay can be coloured, but its original white colour will become brown. A very popular modelling material is Fimo (which is also the trade name of this modelling compound) and Cernit. These modelling masses are coloured and the models after the baking are colour and shape permanent. They are very well modelled and available is also so called Fimo Kids, a softer version. The disadvantage of this modelling material is the price versus other modelling materials. So, they are suitable for jewellery or smaller pieces. The price is approximately € 2 per 56 g.

Self-hardening materials bring a great advantage.

- Jovi,
- Jovi Terracotta.

These two modelling masses are known under the mentioned names in the white and terracotta colours. Both of these materials are from clay – after hardening – ceramics. The masses dry in the air. Thanks to that, we do not need any baking ovens in the classroom. Pleasant for the school work is also the price, which is an average price of about 2 € per 500 g. The Jovi brand is known primarily in the Czech Republic, although others can also be purchased: DAS, CREALL and others. These materials can be coloured after hardening.

- Coloured self-hardening masses

Currently, it is also possible to purchase coloured self-hardening materials. After air hardening, the product is complete and it is not necessary to paint and modify it in any way. For our testing, we used the I-Clay modelling mass. We had a set of 8 colours in cups of 18 g for each child, so in total you get 144 g for approximately about € 7.5. The mass is soft and ductile for modelling. After drying it does not crack, it has colour and shape stability. It is suitable for figures creation. Mass does not pollute fingers during the formation like other modelling masses compared to Jovi. Similar material can be purchased from other manufacturers (Craft Dough, Jovi Patcolor, FUN CLAY and others). Colours can be mixed together.

We would include to the last major category – Permanently plastic.

These are modelling masses designed to model “playing”, when the product is dismantled after finishing. There is no mass hardening. It is intended for temporary use.

We will not mention here the list of manufacturers as there are many for the basic modelling material. The price of these modelling materials is around € 0.5 per package of approximately 200 g with 12 to 15 colours. From the basic version, the lightened versions for children, which are more suitable for the primary school, began to appear. The well-known soft model Play-Doh could also be included here, although it is not permanently plastic but drying out in the air. After finishing the activity, it is necessary to return the modelling material back to the box. However, it is not intended to be hardened. The dry mass can be moistened or unfortunately thrown away. The manufacturer states that mass produces a lot of creativity, but is often available in different thematic packages with cutters and extruders. Thanks to its softness, it is really very suitable for children.

An interesting new modelling mass is Oyumaru. This modelling material would appear to be very suitable for children because of its hardening properties. The mass is placed in water heated to about 80°C and after removal can be modelled until it cools. The risk for children here is hot water. The disadvantage is also a short time for modelling. This mass is used to form casting molds or to produce jewellery. The good thing is that if we heat the created shape, we can transform it into something else. The disadvantage is also the current price and that in the basic set you will get 12 basic colours – sticks and each weighing about 6 g. In the photo, we can see the whole bars, parts, or already used pieces. The pink one contains a key decal.



Production of the modelling dough

For school and home environments, the possibility of producing own modelling mass, with its characteristics approaching the Play-Doh modelling mass, has become currently used.

Many receipts can be found on the internet.

For example, this one can be used

**„For half a kilogram of the dough is needed:**

- 300 ml of water,
- 150g plain flour (or all-purpose flour),
- 75g of salt,
- 2 spoon of vinegar,
- 1 spoon of oil,
- food colouring,
- event. fragrance essences” (Brýdová, 2009).

Everything is at gradual blending on a mild fire baked on a pan. Until there is a bigger ball of more solid consistence. Suitable is a teflon pan not to burn the mass to the pan.

The composition reminds also other modelling materials – doughs that can be incorporated too. Wax, gypsum, dentacryl and paperboard also belong to modelling materials.



For our creativity testing, we began using I-Clay modelling mass. Each child receives a basic pack and is tasked to create a model according to the topic. We compare the results with the results of Urban’s figural test of creative thinking. This article continues to work (Krotky, Simbartl, 2016) and (Honzíková, 2015). Some tests have already passed, the theme was Christmas decorations. In the photo, we can see the matched models with the test.

## Conclusion

We also tested other modelling materials in the classroom. For common “training” activities, it is the best to use common modelling masses from all points of view: Jovi, Jovi Terracotta has also proven to be a very good model for the possibility of colouring and the appearance of ceramics. The price was decisive. I-Clay modelling mass is interesting and engaging for children, and they can take their figures on the next day without the necessity of baking, but there is a higher price. Approved is also own modelling mass (for nurseries) because its composition is not harmful to health.

## Literature

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