

WHY THE BABY TREES DO NOT TAKE AFTER THEIR PARENTS?



SEEDLINGS

Age group: **Kindergartens**

Forestry is a discipline of human activities, which deals with the maintenance and improvement of forests. The task of foresters within the sustainable forest management is to keep balance between the felling of trees and their planting so that the quality forest can be preserved for future generations. The forester sees to that a forest comes to existence through natural regeneration when new trees emerge from seeds directly under the parent stand. Where the foresters fail in regenerating the forest from the original stand due to various reasons, they have to plant the new trees by themselves.

Seedlings and transplants used in forest regeneration are raised in forest nurseries. The raised plants serve to regenerate the forest artificially – they are planted in the forest to replace cut trees.

The seedling grows up from the tree seed. It is a plantlet with typical primary leaves in the first year of its life, which usually differ from the leaves of adult trees. In the forest nurseries, seedlings are considered plants emerged from the seed before their transplanting (replanting at a greater distance), undercutting (properly developed root systems necessary for the successful reforestation ensures its cutting back) or lifting of plants from the bed. After these operations, the seedling is considered a plant.

In nature, we can find many seedlings under the parent trees, too. However, not many of them will survive and only a few of them will reach maturity as full-grown trees. Small and weak seedlings will die, not having enough room to grow, enough sunshine or moisture. Many of them are trampled down by visitors to forests, and some of them can also become a delicacy in the stomach of wild animals

SEEDLING CHARACTERISTICS

1 Spruce seedling: A new spruce tree grows up from the seed, which hides in the cone. The small seed has a wing on which it seats as on a teaspoon. The wing helps the seed in flying to the place where it starts to grow. The spruce seedling looks like a little shaggy spruce tree.

2 Fir seedling: The fir seed resembles a small triangle with a wing and hides in the cone, which falls into pieces right on the tree branch. The seed with the little wing falls onto the ground where it begins to germinate and grow. The fir seedling resembles a star with some longer and some shorter needles.

3 Larch seedling: The young larch tree grows from a winged seed, which hides in a little cone. The larch seedling looks like a small palm tree.

4 Pine seedling: A new pine tree grows up from a winged seed. There are always two of them hiding in the pinecone on lignified fruit cone scales. The seed is gripped by the wing like in the pliers. The pine seedling already resembles a small pine tree.

5 Oak seedling: A new oak tree grows up from the germinated acorn. Primary leaves of oak are heavy and this is why the seedling leaves them near the roots; on the young plant, we will see only the typically lobed oak leaves.

6 Beech seedling: Beech tree grows up from the seed that is hidden inside the hairy beechnut cupule. The first to appear above the ground are primary leaves, which may resemble elephant's ears. You can taste the beech seedlings in spring – their taste is sweetish.

7 Birch seedling: Birch seeds hide in achenes, which may come to us as butterflies. Primary leaves of birch are egg-shaped, the first true leaves are hairy and ribbed like lacework.

8 Maple seedling: Maple tree grows up from the seed hiding in the winged diachene, which you can see in the forest when it is descending to the ground like a small propeller. Primary leaves of maple are oblong and narrow like tongues. Not even these first leaves resemble the true maple leaves because they still miss the typical lobes.

9 Lime seedling: Lime tree grows up from the seed, which hides in a small nutlet airborne to the ground by means of a small leaflet as by means of a parachute. Primary leaves of lime resemble small hands with five stretched fingers.

10 Hornbeam seedling: Hornbeam tree grows up from the seed hidden in a small nutlet, which slides down from the tree in the leaf resembling a little three-pointed boat. Primary leaves of hornbeam resemble two small round pallets.



THEMES FOR ACTIVITIES



- **Visit a forest**, where the foresters will show you the seedlings and the natural forest regeneration in practice – Forest pedagogy with the forester in the forest:

www.lesnipedagogika.cz / Kontakty.



- **Cones and fruits** of various trees are to be examined by eyes and touch by the children. Then the children try to describe them at their best. The teacher helps them by asking about the characteristics of the cones and fruits: prickly – non-prickly, hard – soft, smooth – coarse, heavy – light, pointed – rounded, fragrant – non-fragrant, brown – green, triangular, glossy etc. (cones should be at all times determined in the closed state, i.e. after water bath).
- **Seedlings – tree babies** – Before the game, tell the children a tale about forest fairies that take care of tree babies. Through the fairy tale, the children will learn how the new trees are born, what happens to the seed when it will have germinated, what is the seedling and what problems the seedlings have to face before becoming full-grown trees. The teacher reads the characteristics of individual seedlings (see above) and the children try to determine them according to pictures.
- One different seed is mixed with several seeds of the same kind. The children are to tell which seed does not belong in the group and will try to explain why. The teacher helps them asking following questions concerning the seed characteristics: prickly – non-prickly; hard – soft; smooth – coarse; heavy – light; pointed – rounded; fragrant – non-fragrant; brown – green; squeezed in pliers (pine) – on the teaspoon (spruce) – triangular (fir) – white on one side and rusty lustrous with a tiny wing (larch), different shapes of cupules in acorns and the like.
- **Composing patterns** from cones and various fruits – Mandalas, ghosts of forests and trees





Photo: Archives of the Forest Management Institute, Czech Republic and the Secondary Forestry School in Hranice

● Creating animals from cones

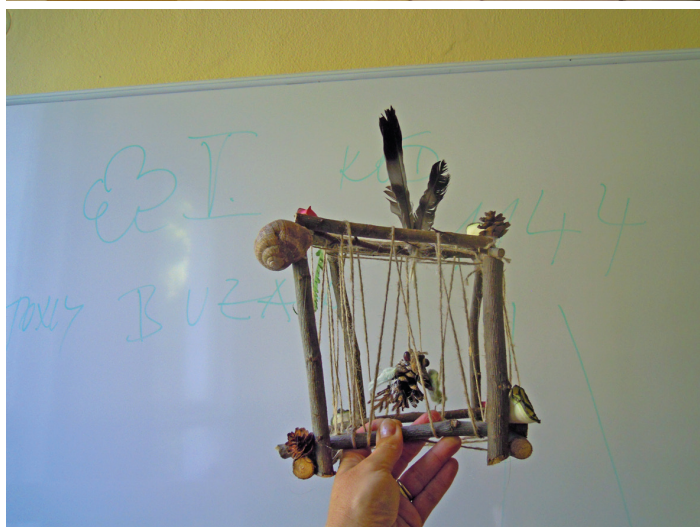
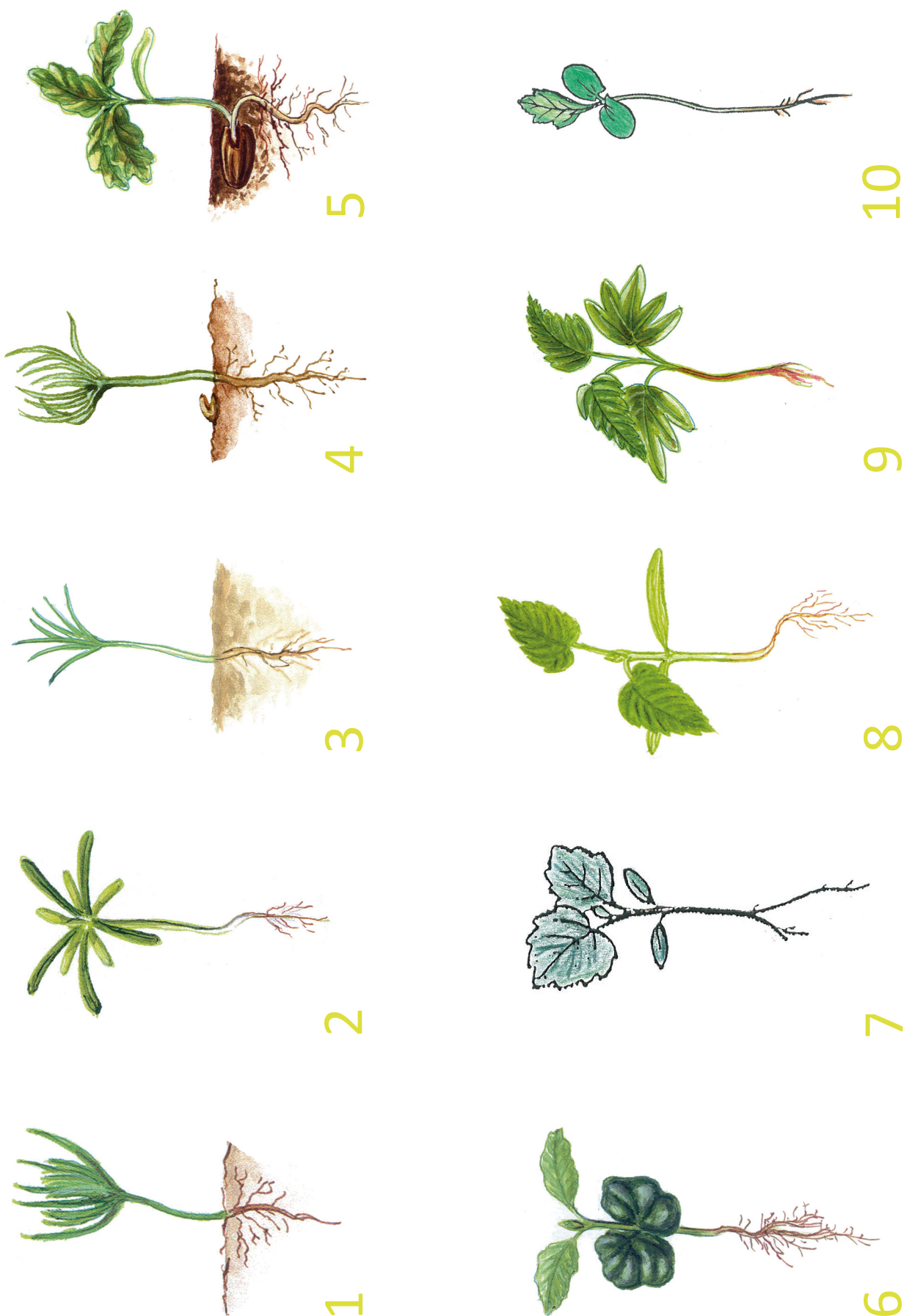


Photo: Archives of the Secondary Forestry School in Hranice

- **Smuggling of seeds** – The teacher will choose 2-3 smugglers whose task is to obtain a rare seed. Other children pass the seed over to each other so that the smugglers cannot get hold of it. Children who do not have the seed pretend passing it over to confuse the smugglers. The smugglers try to find out where the seed is.





Pictures were provided by the Military Forests and Farms of the Czech Republic, state enterprise (1–6, 8–9) and by the Secondary Forestry School in Hranice (7,10)