

Nature Education Materials

for Child Day Care Centres and Extracurricular Organisations
Ages 3–7

Ruby the Rowan



A project by the Erzgebirge/Vogtland Nature Park
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Ruby the Rowan

Introduction

The Ruby the Rowan nature education programme is designed for children from the ages of 3 to 7 and fits into the overall Happy Hedgerows project. Rowans – or mountain ashes, as they are also known – are typical hedgerow trees. Healthy hedges are mostly made up of herbs and shrubs in particular. Individual trees are known as “holdovers” and provide places for birds to nest and singing posts. Rowans do not require much in terms of soil composition and nutrient supplies. As a result, they (like willows) are often one of the first trees to appear in hedges and stone ridges. For this reason, rowans are known as pioneer trees. The foliage of these trees enriches the soil with nutrients, and their vitamin-rich fruits supplement the diets of birds in autumn and winter. Because rowan trees are so common in the Erzgebirge, the inhabitants of the area have a particularly close relationship to their “Vugelbeerbaum”, as it is called in a folk song in the local dialect by Max Wenzel. To teach children about the characteristics and environmental importance of rowan trees, we have created the character Ruby the Rowan, represented by a section of a rowan tree-trunk. Ruby comes to talk to the children and tells them about her life as a deciduous tree living in a hedge. As part of this, the children learn about the plant’s significance in the ecosystem. The associated stories and activities help the children to internalise contextual information about nature. The activities are particularly suitable for the autumn as this is when the trees bear bright red rowan berries that can be picked and processed.

Notes

The materials are indicated in italics. We recommend that you laminate the pictures and photographs. Necessary background information on rowans can be found in the final appendix, “Rowan facts”. We have avoided the use of pronouns for the teacher throughout the text. This handout does of course apply equally to instructors of all genders, and we aim to include everyone by using this format.

Welcome/Introduction

“Vugelbeerbaum” or “Oh Rowan Tree” song

Play the song. The teacher asks the children whether they know which tree the song is about. The teacher either tells them or goes on to ask the children what kind of tree the song is about. Then the children are told that the teacher recently met a young woman called Ruby who knows an awful lot about rowan trees. The teacher encourages the children to call for Ruby.

Ruby appears

She is a small section of rowan wood with a skirt made of rowan leaves and a crown made of a cluster of rowan flowers (see the header image)

Ruby: "Well, well, well! Who's that calling for me? Where have I ended up? This looks like a nursery! What's your nursery called? What town have I ended up in? Oh yes – I see... And I suppose you want to know who I am, don't you? Well, my name is Ruby, and I'm a rowan trunk.

Rowans are trees. Do any of you know what sort of parts most trees have? Let me show you a picture of my mother, Rachel the Rowan" (see appendix for a photo of a typical rowan tree). Ruby waits for the children's answers and

summarises: "We trees have a root system that's hidden in the ground. And out of that root system we grow a tall trunk. Higher up, our trunk splits into branches and twigs, which make a canopy with the leaves. Our trunks are made of wood, and every year they grow a little bit thicker. That means we keep getting bigger and don't die, even in winter."

Deciduous trees and evergreen trees

A few deciduous leaves and evergreen twigs

Ruby: "Look here – I've brought along the leaves of some of my friends. Can you divide the leaves into two different groups? What makes each group different?" The children sort the leaves into a deciduous and an evergreen pile.

Ruby: "So, what do you think each of these groups is called?" Ruby guides them towards needles and leaves.

Ruby: "And do you know what the trees that have these different kinds of leaves are called? It's tricky!" See if any of the children know the answer. If not, continue:

Ruby: "There's a big difference between these types of trees.

It's easiest to see in winter! What do trees with flat leaves do that trees with needles don't?" Trees with flat leaves lose their leaves in winter. "That's why we call trees with needles evergreen trees because they stay green all year round. The flat leaves come from deciduous trees – that's a big word that means the leaves fall off every year."

The shape and names of rowan trees

Photos of the trunk, flowers, leaves, and fruit of a rowan tree, or better still, one or two real leaves; photo of an ash leaf or, better still, a real ash leaf.

Ruby: "What group of trees would you put me in?"

Ruby: "Very good! You're right – we rowans are deciduous trees. Can you think of any other deciduous trees?" The children list other deciduous tree varieties.

Ruby: "Now – how can you tell that I'm a rowan tree and not some other kind of tree?

How can you recognise me?" The children might suggest the red rowan berries. Ruby:

"Yes, my berries make it easy in autumn – but how would you recognise me in spring or summer?" The children answer that they can recognise the tree by its leaves.

Ruby: "That's exactly right – leaves are a good way of recognising and telling different trees apart, and different bushes or herbs too. Take a look at my leaves. First of all, can you tell me whether there is just one leaf, or several leaves?" The children: Several leaves.

Ruby: "That's right, my leaves are compound leaves. Sometimes people call them pinnate, which means that they fold out like feathers. Take a look at the edges of the individual leaves – what do they look like?" Children: Like a saw. Ruby: "A saw – exactly. A saw has a serrated edge, which means that the edge is rough instead of straight. So we can say that my leaves also have serrated edges. Shall I tell you how I got the name 'rowan'?"

Children: Yes...

Ruby: "Well, that's easy! It comes from an old word that means 'red'. But I have another name too – 'mountain ash'.

Can you say it with me?" Mountain **ash**

Ruby: "Have any of you ever heard of an ash tree?" Children may answer yes or no.
Ruby: "I've brought along a leaf from an ash tree" (or a picture) – "What can you see when you compare my leaves with the ash leaf?" Children: They look the same/similar.
Ruby: "That's right, they look similar! We're actually not related, but people gave us a similar name because we look so much alike. But you can just call me Ruby Rowan."

What are rowan berries for?

Cluster of rowan berries

Ruby: "So now you know both my names – mountain ash and rowan. And you know that 'rowan' comes from a word that used to mean 'red'. Can you remember what parts of a rowan tree are bright red?" Children: The berries.

Ruby: "Now, here's an easy question for you: when can you see my berries?" Children: Autumn.

Ruby: "That's exactly right! You can recognise rowans in autumn by our red berries. But they're not like most berries. Take a look at my little red berries – they look like little apples. Now, who do you think eats my berries?"

Children: Birds.

Ruby: "That's right! And the birds don't just eat them – they make sure that we can reproduce. Each berry has three seeds in it, which the birds eat along with the fruit. But the seeds aren't digested in the birds' stomachs – the birds just poo them out again! When that happens, the seeds end up back in the ground. The following spring, they sprout and turn into new rowan trees."

Are rowan berries poisonous?

Ruby: "What do you think – are rowan berries poisonous?" Children: yes/no.

Ruby: "Well, seeing as so many birds eat them, they can't be poisonous to birds, can they? But... What about people? Can humans eat our berries?" Children: yes/no. Ruby: "Actually, the answer is yes *and* no! There are two different types of rowan berries. Wild rowan berries aren't poisonous, but they're very bitter. So you wouldn't want to eat those! But there are also rowan trees that have been bred by humans to taste better. The berries on those trees aren't bitter – they're just sour. You can make things like jam or puree out of them."

Medicinal and other uses for rowan

Lemon, cluster of rowan blossoms

Ruby: "Now, some people call rowan berries the lemons of the north – why do you think that might be?" Children: Because they're sour?

Ruby: "Yes, both of them are sour. But there's another reason. Why do we drink hot lemon or put lemon in our tea in winter?" Children: Because lemons are healthy.

Ruby: "Exactly – lemons are healthy. They have a lot of vitamin C in them, and so do rowan berries. Vitamin C makes your immune system stronger, which means you get sick less often."

Where do rowan berries grow?

A walk to the hedge or somewhere nearby to look at rowan trees and gather rowan berries; baskets

The teacher goes for a walk with the children to see where the rowans grow. The trees not only grow in low-density deciduous forests, but are also often planted in parks, gardens or as avenue trees. On top of that they are typical hedgerow trees and are beloved by birds as singing posts and sources of food.

Some rowan berry clusters can be harvested during the walk. These berries can be dried for the children to turn into bird feed for the winter. (See the Briony Bird nature education materials.)

If the children have been visiting the hedge for a longer period of time, it may be worth revisiting the components of the hedge.

Ruby: "Take a look at the hedge – what kinds of trees can you see? Deciduous trees or evergreen

trees?" Children: Deciduous (or leafy).

Ruby: "That's right! Trees like rowans grow in hedges, but so do my friends the willows, birches and aspen. Did you know that a really healthy hedge is made up mostly of shrubs, with just a few tall trees? What does our hedge look like? Are there more trees or more shrubs?" Children: More trees/shrubs.

Ruby: "How do you think our hedge is doing? Do you think it's healthy?"

Ruby says goodbye

Ruby: "Now then, my little munchkins, you know almost as much about me as I do! Do you know what you need to make sure of when you pick my fruits?" The children shouldn't pick all the clusters of fruit on a tree (there is a story in the appendix which makes this point). The plants should also be growing far away from busy streets or places where it's dirty – so hedgerows are an ideal spot for gathering berries. The teacher draws attention to these issues.

Ruby: "I hope you have lots of fun gathering, cooking and nibbling! Cheerio!" The children say goodbye to Ruby.

Activity ideas

Rowans are a widely distributed tree. These activities are especially suitable for autumn as this is when the fruit of the rowan tree can be gathered.

While rowan berries are suitable for use in cooking (particularly berries from cultivated rowans), rowan berry jam has a sharp sour flavour that children do not particularly like. If you are planning a cooking activity, we recommend using a mixture of apples and rowan berries.

A recipe to try

Apple and rowan berry jam

Ingredients: 750 g peeled and cored apples, chopped into chunks
250 g rowan berries (with their stalks removed)
500 g jam sugar (at a fruit to sugar ratio of 1:2)
Juice of one lemon

Peel and core the apples, then cut them into chunks. Remove the rowan berries from the stalks, pick out any bad ones, and then wash the berries. Weigh all the ingredients, then put them in a pan and use a hand blender to chop them until the pieces of fruit are the desired size. Bring the jam to the boil for about three minutes. Pass around a small amount of jam on a plate to taste before decanting the jam into sterilised jars. Seal the jars with a twist-off lid immediately and place them upside down for a few minutes.

Have fun and enjoy your jam!

Please note: When carrying out the pilot project, we discovered that the children really enjoy gathering, washing, weighing, measuring, and (of course) cooking and tasting the berries and fruits, and are keen to get involved. (This is also true for elderflowers and elderberries – see the nature education material for Evan the Elder). However, please take

good care when working with the hot stove and pan; in the pilot project, the jam was stirred and decanted by the adults.

Colouring activity

Colouring page in the appendix

The appendix contains a rowan-themed mandala for the children to colour in during a spare moment. If the children are keeping a hedge diary, they can add the picture to it. Source for the mandala: www.kidsweb.de

The story “Ivan and the Forest Spirit” is sure to capture the children’s imagination. As a follow-up activity, they can draw or paint the images that they pictured while listening.

A story to read aloud

The story “Ivan and the Forest Spirit” can be found in the appendix. It is based on a tale from the Harz mountain region and explains how the rowan berries got their bitter taste. It also contains a lesson about the consequences of greed. It indirectly calls upon listeners to treat nature and its inhabitants with care. (See appendix.)

Making bird feed and gathering materials for crafts and decorations

The fruits of the rowan tree provide food for birds during the lean autumn and winter months. They can be dried and added to winter feed that can be made as an activity with the children (see the Briony Bird nature education materials).

The bright red berries are also suitable for use in crafting and decorating for autumn (e.g. for decorating figures made out of chestnuts, threading onto string to make rowan berry bracelets, necklaces and wreaths, or to add to decorations made out of moss) and Christmas (decorating floral arrangements and wreaths).

Rowan facts

Rowans (*Sorbus aucuparia*) are deciduous trees that belong to the rose family. The trees grow to a height of between 12 metres and (very rarely) 20 metres, and live for up to 100 years. They can withstand low temperatures, which allows them to grow at elevations of up to 2000 metres in central Europe. In the harsh climate of the Erzgebirge, they are widely distributed as high up as the ridge elevations. Rowans grow at the edges of moors and forests, and are among the pioneer trees that recolonise areas heavily damaged by storms. They also frequently appear in hedgerows as trees or, if they are cut back, as shrubs. In spring and autumn, the rowans, blackthorns, elder, dog roses and hawthorn growing together in near-natural hedgerows produce a gorgeous display of colours. Rowans blossom in May and June. The flowering stems (panicles) are a bright yellowish white and have a strong scent that some people find unpleasant. The scent primarily attracts beetles and flies, which are responsible for pollinating the blossoms.

Rowan leaves are odd-pinnate (with individual leaves paired opposite one another, except for a single leaf at the tip of the petiole or stalk). There are 9 to 17 individual leaves on each petiole, and their leaf-edges are serrated. When they are crushed between the fingers, they smell of bitter almonds.

Plant family:	Rose family
Genus:	<i>Sorbus</i>
Species:	Rowan (<i>Sorbus aucuparia</i>)

Botanically speaking, rowan berries (the fruits of the rowan tree) are not true berries but apple-like fruits known as pomes. The flesh of the fruit contains three seeds. The fruits are eaten by birds and mammals. The seeds remain undigested and are discarded through the animals’ excrement. This has resulted in the wide distribution of rowans. The botanical name

of the rowan contains the Latin word for “bird trapping” (*aucupium*), which is made up of the words for “bird” (*avis*) and “capturing” (*capere*). This refers to the use of rowan berries as bait in bird trapping.

The significance of rowans to fauna

The fruit of the rowan is especially important to birds and animals. It represents a vitamin-rich food source during autumn and winter. Over 60 different species of birds use rowans as a source of nutrition, including blackbirds, song and mistle thrushes, redwings, robins, nuthatches and bullfinches. The trees also provide good nesting spots and singing posts for the birds. As well as being eaten by birds, the berries provide nourishment for mammals such as dormice, yellow-necked mice, red-backed voles, foxes and badgers. Deer, roe, and wild boar prefer the tree's leaves, buds and young shoots. In addition to these animals, approximately 70 types of insect live in rowan trees, including many small moths and weevils.

Medicinal and other uses for rowan

In addition to their high vitamin C content, rowan berries also contain a large amount of provitamin A, sorbitol (used as a sugar substitute) and parasorbic acids. These acids are responsible for the intolerability of the berries when raw; although they are not poisonous, they cause stomach problems.

Rowan berries can also be used in cooking. Their bitter flavour is reduced if the berries are not picked until after the first frost or if they are blanched with boiling water twice. This converts the parasorbic acids, which cause stomach problems, into tolerated sorbic acids. Jam, jelly and liqueur can be made from the berries. In the past, they were used as a substitute for raisins in Christmas baking such as stollen (a kind of fruit loaf). Some families still continue this practice today, or they have revived it.

In natural medicine, rowan berries are used as a remedy for diarrhoea. They are also a diuretic. Freshly pressed rowan berry juice is administered as a laxative.

Rowan wood is heavy and hard, and was primarily used to make wagon wheels and wooden barrels in the past. Nowadays, it is used to manufacture furniture and for turning and carving as it is well suited to woodworking.

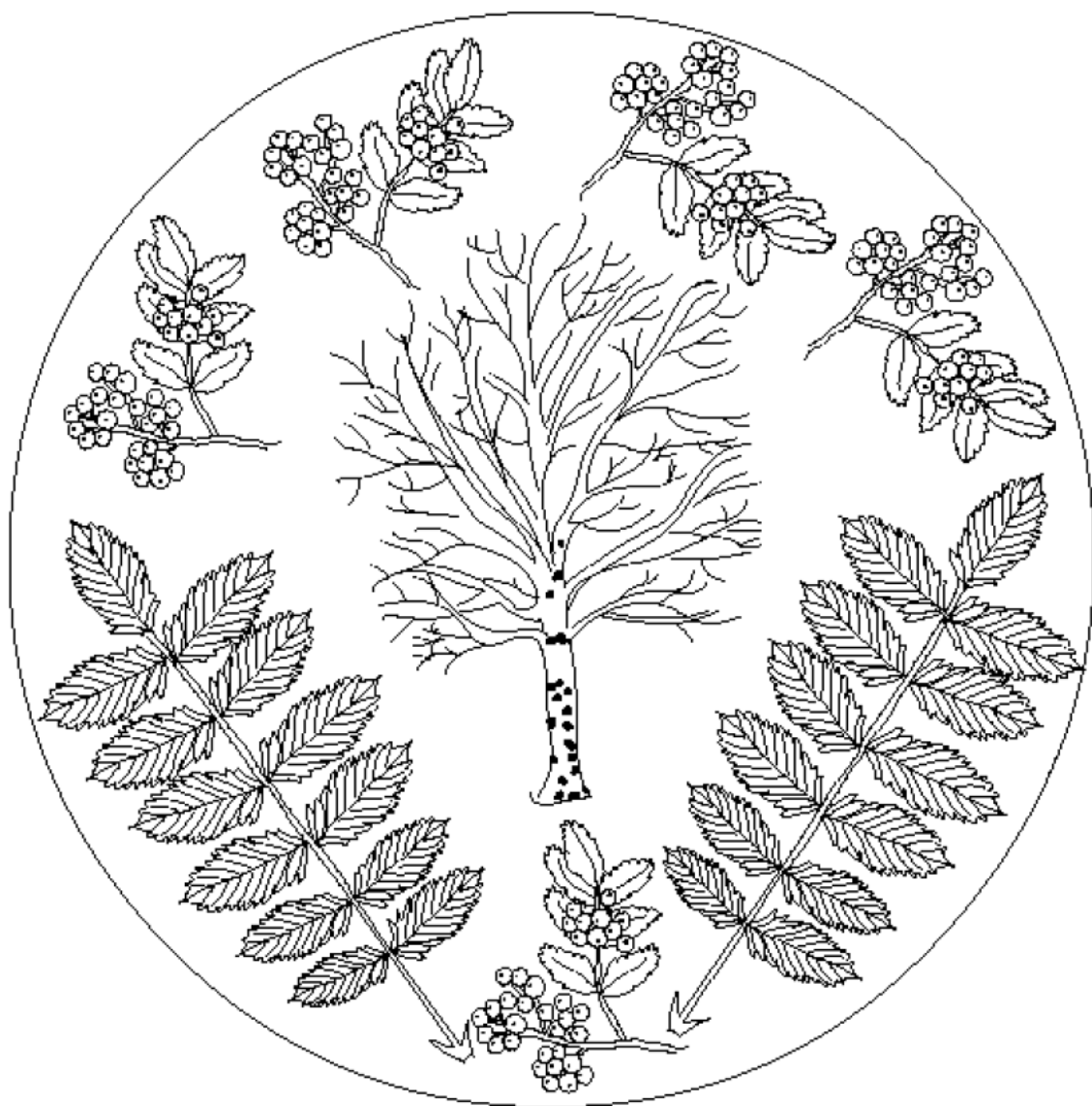
References:

General information on rowans:

Meister, K. (2007): *Erzgebirgsflora im Portrait*.

<http://www.bund-sh.de/uploads/media/eberesche.pdf> (30/01/2014) Mandala to colour in:

http://www.kidsweb.de/basteln/mandala/pflanzen_mandala/eberesche.html



Story: Ivan and the Forest Spirit

A long, long time ago the people in the Erzgebirge mountains lived together in small villages next to bubbling brooks. They lived in harmony with nature as they tilled their fields, kept goats and sheep, and gathered wood from the forest to heat their homes. The people lived off of nature's gifts and knew about the healing and strengthening powers of plants. Women and girls would go into the forest to look for mushrooms, to pick blueberries and rosehips and to gather wild herbs. Their husbands tended the fields or went hunting to supply the families with meat. The families never took more from nature than they needed. They were careful to make sure that there was always enough left over for the animals of the forest.

One day, a stranger called Ivan arrived in the forest village. The villagers welcomed him and gave him food to eat. It was time for the rowan berry harvest, and so the generous people of the Erzgebirge offered him delicious dishes made with the red berries. Ivan was surprised because he had never heard of the berries that the villagers had made into such tasty meals. He decided that he would try to make the dishes back in his own homeland and asked the villagers how to prepare the berries. When Ivan returned to his homeland, he headed straight into the forest to gather rowan berries. All he could think about was the delicious food he was going to make with the berries. His mouth watered. He gathered all the berries he could reach, and then he climbed all the way to the top of the highest trees to pick more. To make sure he didn't miss a single berry, he even cut branches off the trees.

Suddenly a forest spirit appeared. It told Ivan: "The berries here aren't all for you: leave some for the blackbirds, too." But Ivan wasn't scared of the forest spirit. He laughed right in its face and kept picking berries. He cried out, "Why should I care about the birds? They can use their wings to fly away and gather berries elsewhere!" The forest spirit was so angry at Ivan's arrogance that it put all its bitterness into the berries. Since that day, all rowan berries have been bitter, and only the birds can enjoy them without cooking them first. That's why the people of the Erzgebirge mountains still call them bird berries today.

(As told by Bernd Sternal based on a story by Kristin Eberhardt)



Typical rowan tree and bark pattern
Source: www.baumkunde.de (30.01.2014)



The blossoms appear in May and June; a two-banded longhorn beetle pollinates the flowers as it wanders over them



The rowan berries ripen from September onwards



Rowan leaf;
 9 to 17 individual leaves with serrated edges;
 Odd-pinnate (has a single leaf at the tip);



Common ash leaf;
 9 to 13 individual leaves with serrated edges;
 Ovate-lanceolate leaves;