



Experience Spring Contest



peacock butterfly



Discover the signs of spring. Win prizes.

Starts March 15. Ends May 24.

Learn about one, three, or all four spring messengers and take action!
Get outside, take photos, write a poem, make a movie - get creative!

Who are the messengers of spring?

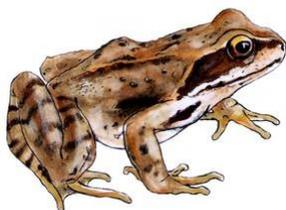
Peacock butterfly, common grass frog, European goldfinch, common nettle

Who can participate?

Children ages 3 to 12 - School groups, families, youth organizations, etc.

How to enter?

You can focus on one spring sign, two, or all four, devote an hour or as much time as you can find. To enter, compile your activities, fill out our entry form, and submit your entry to Christine Fox at Environmental Division, Tower Barracks BLDG 389 by **Tuesday, May 24, 2016.**



common grass frog



European goldfinch



common nettle

For more information, fact sheets, and activities, visit www.bavaria.army.mil/environmental or contact Christine Fox at 475-8999, Christine.e.fox5.vol@mail.mil or Caecilia.kastl-meier.ln@mail.mil

Experience Spring Contest

This year, the USAG Bavaria Environmental Division is hosting the Experience Spring contest which is modeled after the Naturschutzbund Deutschland's (NABU) Erlebter Frühling contest, a yearly, Germany-wide nature contest for children, ages 3 to 12. Participants explore the four signs of spring in the school yard, back yard, or anywhere outside and further their learning by creating activities and projects related to the 2016 signs of spring, the **peacock butterfly, common nettle, common grass frog, and European goldfinch**.

What are the dates?

Starts: **Tuesday, March 15** Ends: **Tuesday, May 24** Winners will be announced: **Wednesday, June 1**

Who can enter?

Children ages 3 to 12 - School groups (K - 5th grades), families, youth organizations, scout groups, etc.

Are there prizes?

Everyone who participates will get a participation gift. We will determine a 1st place winner for the most creative and thoughtful entry and we will award prizes to three runner-up submissions.

How does the contest work?

The goal of our contest is to welcome spring by connecting children with local plants and animals and fostering an appreciation for these species.

What do you need to do?

We want you to show this connection through activities and their deliverables (drawings, poems, games, etc.) that relate to the 2016 signs of spring. Your group can learn about one spring sign, two of them, or all four. Participation can range from one 30 minute activity with a deliverable to as many activities and as much time as you would like. Remember: creativity knows no limits! You can make a poster about the signs of spring, photograph them, make a film, conduct a play, or write a research diary.

To condense your entry, you can scan pictures or photos into a document. If an item is fragile or large, or you play a game or conduct an activity, you can submit pictures of it. Include brief descriptions of what and why with each deliverable.

Once you have completed your activities, compile your deliverables into a packet - this is your entry! We have entry forms, fact sheets, activities, and additional resources on our website, www.bavaria.army.mil/environmental.

How to enter?

To enter, fill out our entry form, assemble your activities and deliverables, and submit your entry to Christine Fox at Environmental Division, Tower Barracks BLDG 389 by **Tuesday, May 24, 2016**.

Erlebter Frühling Contest

We would like to combine all your submissions into a USAG Bavaria-wide packet and submit it to the Erlebter Frühling contest to show American support of this great contest. With your permission, we would like to include your submittal in our entry packet. For more information about NABU's Erlebter Frühling contest, visit: www.erlebter-fruehling.de.

For questions, contact:

Christine Fox Christine.e.fox5.vol@mail.mil or Caecilia Meier Caecilia.kastl-meier.ln@mail.mil
475-8999 or 09641-83-8999

Experience Spring Contest Entry Form

Please complete this form and submit it along with any materials you have created for the contest to Christine Fox at Environmental Division, Tower Barracks BLDG 389 by **Tuesday, May 24, 2016**.

1. Contact Information

Institution: _____

Point of Contact Name: _____

Address: _____

Telephone: _____ Email: _____

2. Which signs of spring have the children explored?

Peacock Butterfly Common Nettle European Goldfinch Common Grass Frog

3. Who has explored the spring signs?

School Class Family Scout Group Other

4. How old are the explorers? _____

5. How many explorers participated? _____ (_____ Girls and _____ Boys)

6. How much time was devoted to learning about the signs of spring?

One Hour One Day A Couple of Days One Week Several Weeks

One Month More Than a Month

7. What did you do to explore?

Poster Journal Crafts Drawings Photos Film Poem Story Telling

Game Other: _____

I/We have filled out the entry form and included it with our materials.

I/We agree that the Environmental Division can submit our entry to NABU's Erlebter Frühling contest in Berlin.

I/We agree that my/our published competition entry, can be used by USAG Bavaria Environmental Division and NABU's Erlebter Frühling contest, for example in exhibitions and presentations.

Date: _____

Signature: _____

For questions, contact Christine Fox at 475-8999, Christine.e.fox5.vol@mail.mil or
Caecilia Kastl-Meier, Caecilia.kastl-meier.ln@mail.mil

European Goldfinch Fact Sheet

Common Name: European Goldfinch
Scientific Name: *Carduelis carduelis*
German Name: Stieglitz

Description: The goldfinch (*Carduelis carduelis*) is a strikingly beautiful bird, with a bright red face, black and white head, and a deep golden yellow bar on the otherwise jet-black wings. Another notable feature is the long, pointed beak, which allows this species to extract seeds from teasels. Males and females are similar in appearance, although females have shorter beaks. Juveniles have greyish-brown streaked heads, lacking the red, white, and black pattern of the adults. Flocks produce a delightful liquid twittering song and call.

Size Length: 12 - 13.5 cm

Wingspan: 21 - 25.5 cm

Weight: 14 - 19 g

Biology: Thanks to their long, pointed beaks, male goldfinches are the only birds that are able to extract seeds from teasel heads; they cling to the stem and tear into the seed head, accessing the seeds inside by probing with the bill. Females have shorter beaks and so they are unable to exploit teasel heads. In the autumn, when seed heads are common, goldfinches have a broad diet, feeding on groundsels, ragworts, thistles, and dandelions, as well as the favorite teasels and knapweeds. Outside of the breeding season, goldfinches roam in flocks in search of food during the day. At night, they roost in evergreens or thick scrub. Flock size varies depending on the availability of food, but groups of 100 birds are quite common.

During spring, goldfinches often display whilst sitting on branches, singing, drooping the wings, and swaying from side to side. Between four and six eggs are produced and these take up to 14 days to incubate. The young goldfinches will have fledged after 13 to 18 days.

Habitat: Breeds in mixed woodland, orchards, parks, commons, gardens, and pine plantations where there are thistles and other plants that produce seeds.

Diet: Seeds, feeding on groundsels, ragworts, thistles, and dandelions as well as the favorite teasels and knapweeds.

Range: Found throughout Germany and much of Western Europe. It does not migrate in Germany.

Threats: Agricultural use is a threat to this species because it destroys wild meadows where food sources grow.

Conservation Status: The goldfish is classified as Least Concern (LC) on the IUCN Red List. All birds in Germany are protected by the Bundesnaturschutzgesetz (BNatSchG) law.

Resource: <http://www.arkive.org/goldfinch/carduelis-carduelis/>

YouTube video about threats to goldfinch habitat:

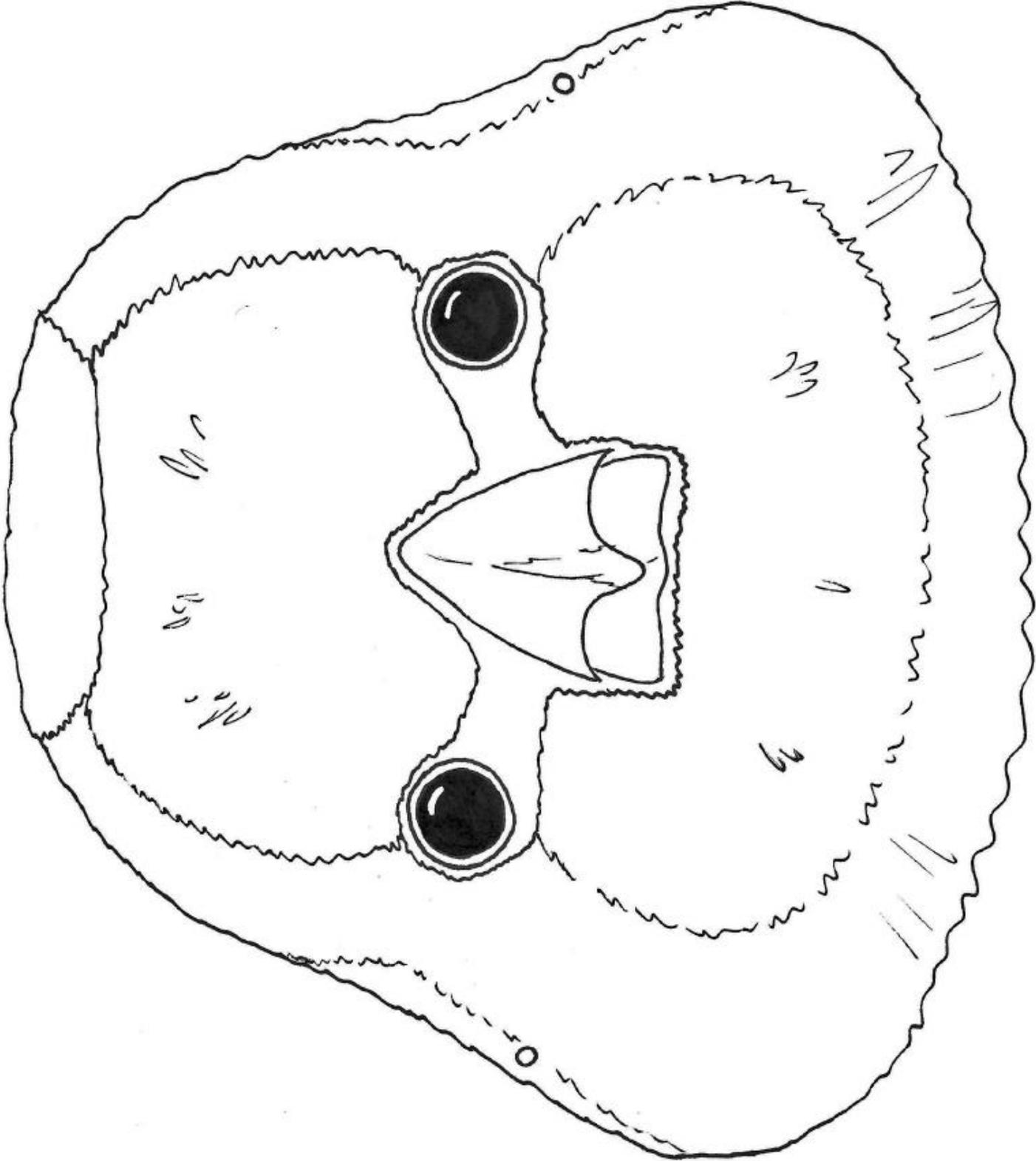
https://www.youtube.com/watch?feature=player_embedded&v=1SSUziegMYg



By Francis Franklin - Own work, CC BY-SA 4.0,
<https://commons.wikimedia.org/w/index.php?curid=39228864>

European Goldfinch Mask

Create your own European Goldfinch mask!



Which One of These is Not Like the Other

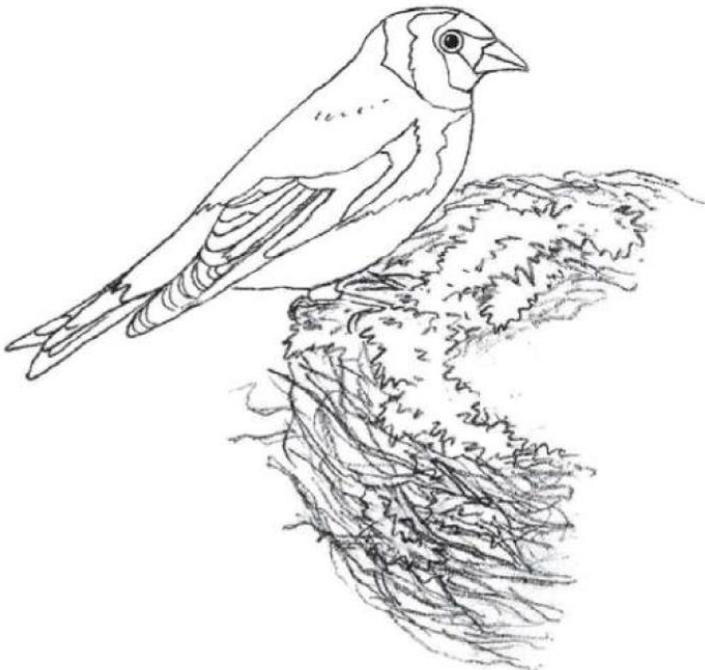
When observing and identifying birds, it is important to look for key features such as coloration, tail shape, eye color, wing shape, and silhouette to determine the species and gender. Work on your birding skills by circling the differences between the two birds.

Which one is the European goldfinch? _____



All About Eggs

Research European goldfinch eggs. How many do they lay? What do they look like? How long do they take to hatch? Once you are an expert, finish drawing the nest with eggs inside.



Dinner Detective

Get out your magnifying glass and find a meadow to investigate. Many of these plant species are food sources for the European goldfinch. How many of each plant do you find? Would this meadow make a good dinner buffet for the European goldfinch? Record your observations:



Daisy: _____



Nettle & Deadnettle: _____



Chamomile: _____



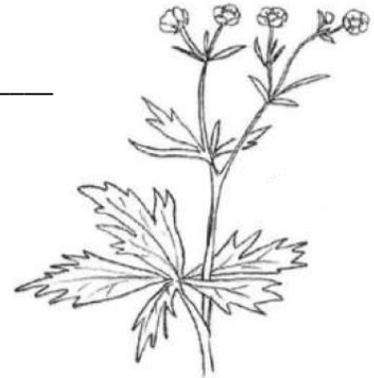
Clover: _____



Dandelion: _____



Thistle: _____



Buttercup: _____

Peacock Butterfly Fact Sheet

Common Name: Peacock Butterfly

Scientific Name: *Aglais io*

German Name: Tagpfauenauge

Description: The beautiful peacock butterfly (*Inachis io*) is a well-known and instantly recognizable species thanks to its unique patterning. The stunning eyespots, which earn this species its common name, frighten predators, or divert birds from attacking the body. In stark contrast to the brightly colored upper surfaces, the undersides of the wings are dull brown. The sexes are similar in appearance, but females are slightly larger. The caterpillar, which grows to 4.2 centimeters in length, has a black, spine-covered body freckled with fine white spots.

Wingspan: 5.5 - 6 cm

Biology: Usually one generation is produced each year. Its host plant is the common nettle. Females lay eggs in groups underneath nettle leaves during May, after around two weeks the eggs hatch. The caterpillars live in groups, protected by a web of silk, before dispersing to pupate, hanging underneath vegetation. The adults emerge around two weeks later in late July. They gather together at sources of nectar, building up reserves to see them through hibernation, which usually begins in September and occurs in hollow trees and other refuges, including attics, garages, and sheds. They do not mate until the following year, emerging from hibernation as early as February, with peak emergence occurring in April. Males defend territories in sunny locations, and chase any females that pass by. If threatened they can produce a hissing sound created by rubbing the veins on their forewings and hindwings together – this is audible even to the human ear.

Habitat: Peacock butterflies occur in a wide range of habitats, and are familiar garden visitors. The adults prefer to feed in open areas in woodlands, and breeding habitat typically consists of large patches of nettles (*Urtica dioica*), in sunny areas sheltered by woodland or hedges.

Diet: Caterpillars: leaves of common nettle.

Adults: nectar from a variety of plants including thistle, betony, bluebell, blackberry, lavender, phlox, cuckooflower, dandelion, teasel, butterfly bush, etc.

Range: Occurs throughout Germany and much of temperate Europe, extending northwards to southern Scandinavia, but is absent from many areas of the extreme south. The peacock butterfly also occurs in Asia, reaching Japan.

Threats: Destruction of habitat, especially common nettle removal. Use of pesticides and herbicides for agricultural purposes.

Resources: <http://www.arkive.org/peacock-butterfly/inachis-io/>

<http://www.woodlandtrust.org.uk/visiting-woods/trees-woods-and-wildlife/animals/butterflies/peacock/>



By Charlesjsharp (Own work, from Sharp Photography, sharpphotography) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

Butterfly Caterpillar Matchup

Each butterfly was once a caterpillar. Each species of butterfly has its own unique caterpillar.

1. The peacock butterfly caterpillar is black and spiky with many white dots.
2. The brimstone butterfly caterpillar is quite simply green.
3. The dovetail butterfly caterpillar with its black and orange spots is quite striking.
4. The little fox butterfly caterpillar is black and hairy with two green strips.

Match the caterpillar with the butterfly!



Peacock butterfly



Dovetail butterfly



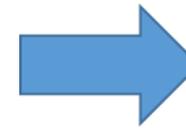
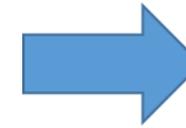
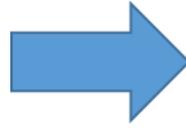
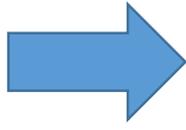
Brimstone butterfly



Little fox butterfly

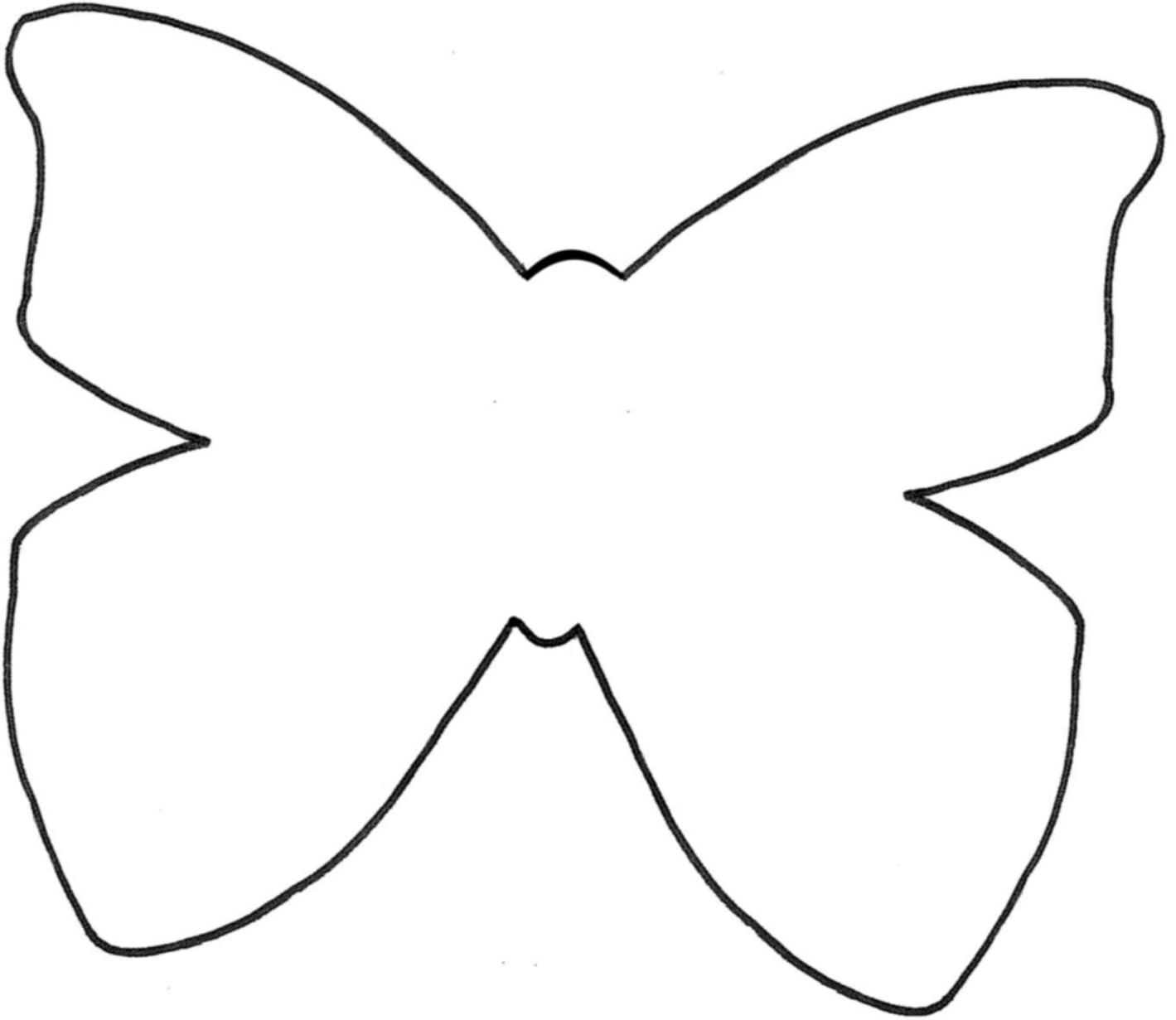


Butterfly Matching Key



Peacock Butterfly Masks

1. Have your students create a butterfly mask from the outline.



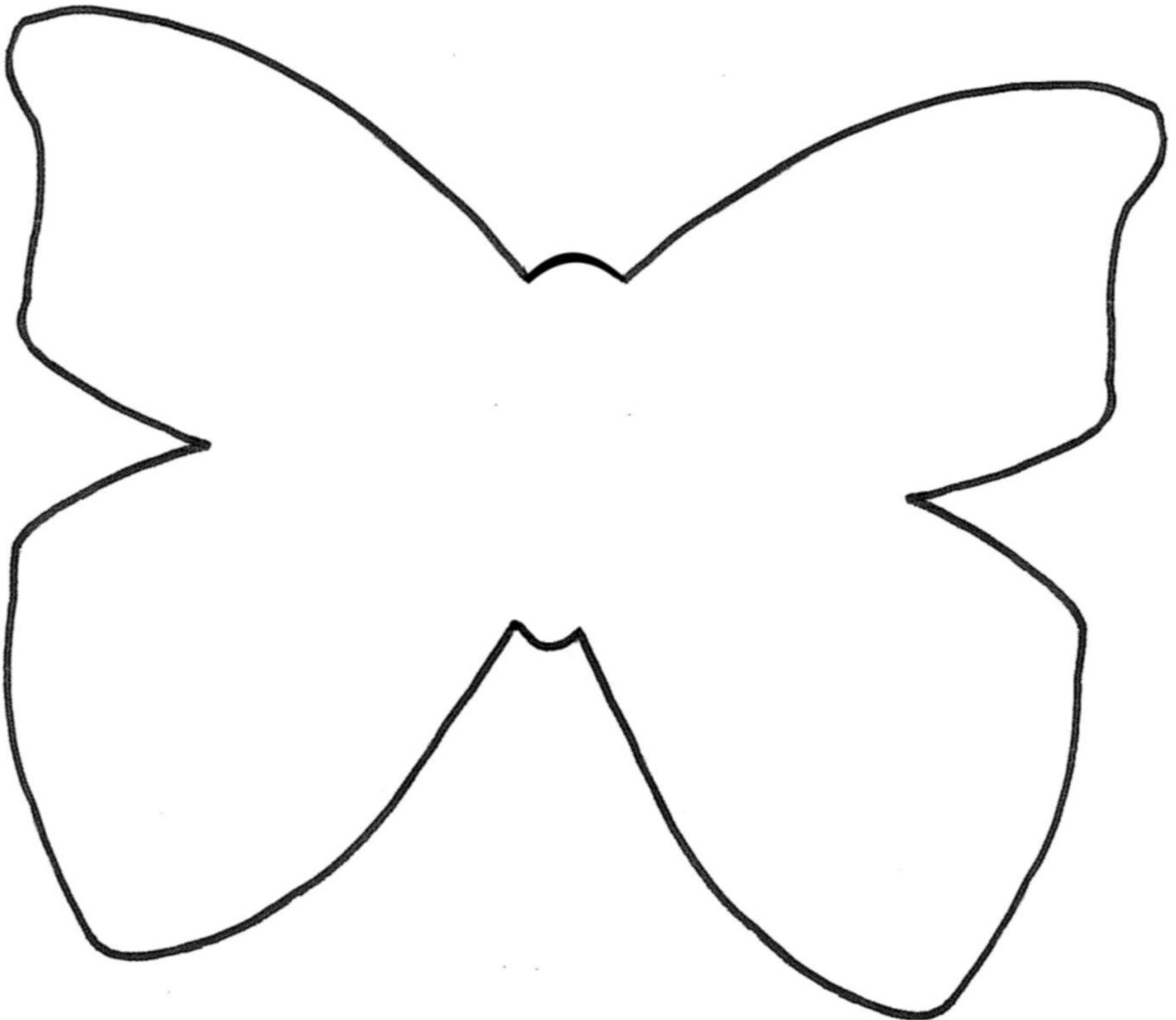
Butterfly Camouflage

Camouflage is a defense or tactic that organisms use to disguise their appearance, usually to blend in with their surroundings. Organisms use camouflage to mask their location, identity, and movement. This allows prey to avoid predators, and for predators to sneak up on prey.

Peacock butterflies use camouflage to protect themselves from predators that want to eat them.

Look at one upside-down as it basks in the morning sun and imagine for a moment that you're a potential predator, a mouse perhaps. Suddenly those piercing spots really do look like eyes, while the butterfly's body becomes a beak, and the tips of its hindwings morph into owl-like ears. You're staring down a rather scary enemy – especially if the peacock starts hissing at you, a trick it pulls by rubbing its wings together. All in all, you're probably going to look elsewhere for your lunch.

Create your own camouflaged butterfly! What habitat does it live in? Who are its predators?



Butterfly Gardens

Here is a list of plants that butterflies feed on. Other pollinators such as bees, flies, and wasps love them too!

Native Species

- Common nettle (*Urtica dioica*) – a food source for peacock butterfly caterpillars
- Arnica (*Arnica montana*)
- Blackberry (*Rubus fruticosus*)
- Eryngo (*Eryngium ssp.*)
- Sedum (*Sedum ssp.*)
- Lychnis (*Lychnis grandiflora*)
- Goldenrod (*Solidago canadensis*)
- Mallow (*Malva ssp.*)
- Dianthus (*Dianthus ssp.*)
- Thyme (*Thymus vulgaris*)
- Forget-Me-Nots (*Myosotis ssp.*)
- Pansies & Violas (*Viola ssp.*)
- Willow (*Salix ssp.*)

Garden Species - these are non-native plants in Germany

- Sweet William (*Dianthus barbatus*)
- Starflower (*Borago officinalis*)
- Dahlia (*Dahlia variabilis*)
- Common Sage (*Salvia officinalis*)
- Fuchsia (*Fuchsia ssp.*)
- Crocus (*Crocus vernus*)
- Cress (*Tropaeolum majus*)
- Cherry Laurel (*Prunus laurocerasus*)
- Lavender (*Lavendula ssp.*)
- Phlox (*Phlox ssp.*)
- Petunia (*Petunia ssp.*)
- Larkspur (*Delphinium ssp.*)
- Butterfly Bush (*Buddleja ssp.*)

Common Nettle Fact Sheet

Common Name: Common nettle, also known as stinging nettle

Scientific Name: *Urtica dioica*

German Name: Brennnessel

Attention: Be careful around common nettle, as contact with the leaves and stems causes skin irritation. While the effects are uncomfortable, it is not dangerous. This is the plant's defense mechanism.

Description: The common or stinging nettle is a well-known and highly successful 'weed' species. It is a perennial species, which flowers from June to August and spreads by seeds and by vegetative reproduction via creeping underground rhizomes. The roots are very tough and are yellow in color, and the creeping stems, which often take root at their bases, produce shoots during spring. The oval-shaped leaves are easily recognized; they have deeply serrated edges and bear stinging hairs. These hollow hairs have a similar structure to hypodermic needles, and have a swollen base that contains the acid; an encounter with these leaves is not quickly forgotten. The specific part of the scientific name *dioica* means 'two houses', which refers to the fact that the male and female flowers are found on separate plants. The small whitish flowers are clustered in spikes, which reach up to 10 cm in length.

Size Height: 30 - 250 cm

Leaf length: 4 - 15 cm

Habitat: The common nettle prefers damp soils that are rich in nutrients. It occurs in a broad variety of habitats, such as woods, unmanaged grasslands, scrub, hedgerows, road verges, waste ground, gardens, farmland, fens, and river banks.

Range: Occurs throughout Germany and in temperate parts of Europe and Asia, and has been introduced to many areas outside of this native range. In the United States, we have a native subspecies, *Urtica dioica* subsp. *gracilis* (Ait.) (American stinging nettle) and the introduced subspecies, *Urtica dioica* subsp. *dioica* (European common or stinging nettle).

Ecological Significance: It is one of the most important plants in Europe for invertebrates, and is essential for many of our species of butterflies and moths, including being a host plant for the caterpillars of the beautiful small tortoiseshell (*Aglais urticae*) and peacock (*Inacis io*) butterflies. What is a host plant? For each species in the butterfly kingdom, its larva (caterpillar) can only feed on specific plant species. These specific plant species are referred to as butterfly host plants or caterpillar host plants or butterfly larval plants. One larva's staple is another one's poison. It is not grazed by animals due to the presence of the protective stinging hairs, and so the nettle provides a relatively safe habitat for insects and their larvae. Leaving common nettles in gardens provides habitat for many species of butterflies and moths.

Uses: Humans have put the nettle to various uses; it does not sting when it has been cooked, and can be eaten like spinach or made into nutritious soups. A good green manure for gardening can be made by soaking the leaves in water. During old times, cloth was made from nettles. In Germany the fibers were used to make army uniforms during the First World War when cotton was in short supply. It also has a number of medical uses, such as treatments for arthritis and gout.

Conservation Status: This species is not threatened. Conservation action is not required for this species.

Resource: <http://www.arkive.org/common-nettle/urtica-dioica/>

Website that sells nettle cloth: <http://www.naturstoff.de/shop/Hanf,-Brennnessel-&-Co/Brennnessel/900096/f.html?>



CC BY-SA 3.0,

<https://commons.wikimedia.org/w/index.php?curid=369351>

Sock Garden

Season: May and June

Time required: 20 minutes on the field, then a few months to raise the seed

Material: a few old, colorful socks, magnifying glasses, flower pots, potting soil

Nettles reproduce from seeds, but how do their seeds spread to new locations? Seeds are carried away by the wind and animals. Nettle seeds must easily detach themselves from the flower head by a gust of wind or a touch. Nettles are not the only plants that use this technique.

During late spring, many plants are flowering and releasing their seeds. To make the sock garden, have the children wear old, colorful socks and run through a meadow. The seeds will get caught in their socks. Either on the playground or in the classroom, find the seeds with the help of a magnifying glass. Pluck off the seeds and put them in a flower pot with soil. Make sure to only put a few seeds in each pot so that each plant has enough room to grow. Put your pots in a sunny location. Water your seeds regularly and soon the plants will sprout. What are these plants? Attempts to identify them. Perhaps there is even a nettle!

Plant Defense

Search for plants that defend themselves from predators with thorns, spines, or stinging hairs. Look but don't touch!

What is the name of the plant?

How does it defend itself?

Beneficial Plants

Look in your bathroom for shampoo, conditioner, shower gels, lotion, or other cosmetic products. Check out the labels to see if they contain plant extracts or oils.

What is the name of the plant?

What is the name of the product?

Edible Nettle Soup

1. Harvest the nettle using gloves.
2. Wearing rubber gloves, wash the nettle thoroughly and shake to dry. Pluck the leaves from the stalks.
3. Finely chop the onion and garlic.
4. Using medium heat, melt the butter in a stockpot and add the diced onions. Lightly sauté the onion, then add the nettle leaves into the pot. Lightly sauté the leaves and onion, then add the garlic and vegetable broth. Season with salt and pepper and cover it.
4. Simmer for five minutes and serve.

Ingredients

400 g nettles
1 onion
1 clove garlic
4 cups vegetable stock
1 tbsp. butter
Pinch of salt and pepper

Materials

Gloves
Stockpot
Knife
Cutting board
Measuring cup

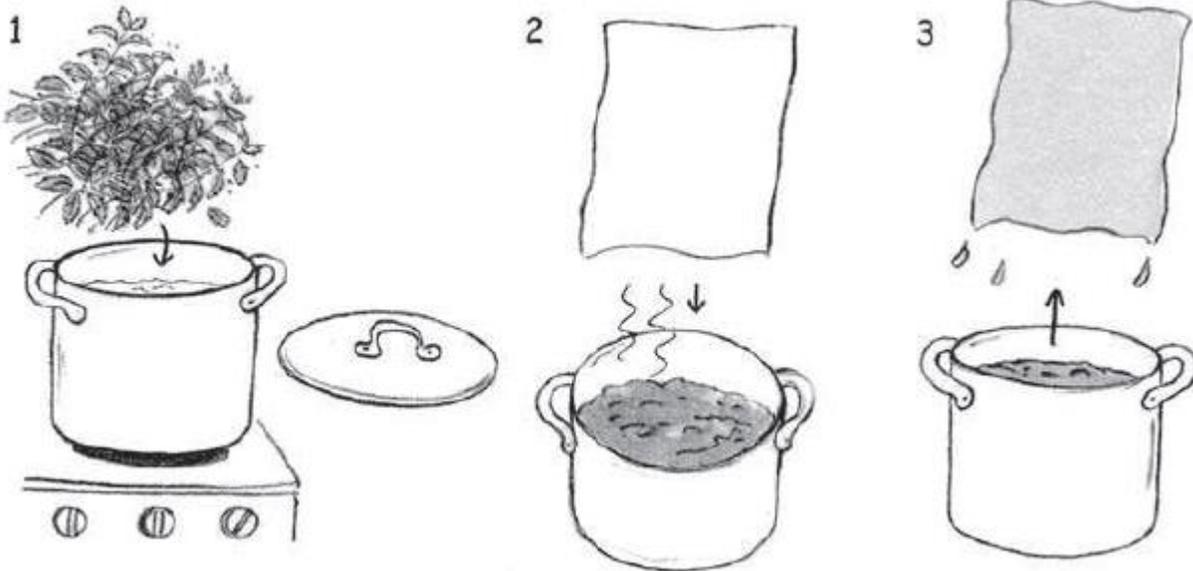
Caterpillar Food

The common nettle is a host plant for the peacock butterfly caterpillar. Draw a picture of a caterpillar on the nettle. Does the nettle provide the caterpillar protection? How?



Nettle Dyed Bandanas

1. Wearing gloves, carefully gather 4 bundles of nettle.
2. Fill a large pot of water and bring to a boil.
3. Add the nettles and carefully stir. Allow nettles to cook for 10 minutes.
4. Take a white bandana and carefully dip it in the water. Dip multiple times for a brighter green.
5. Hang to dry.

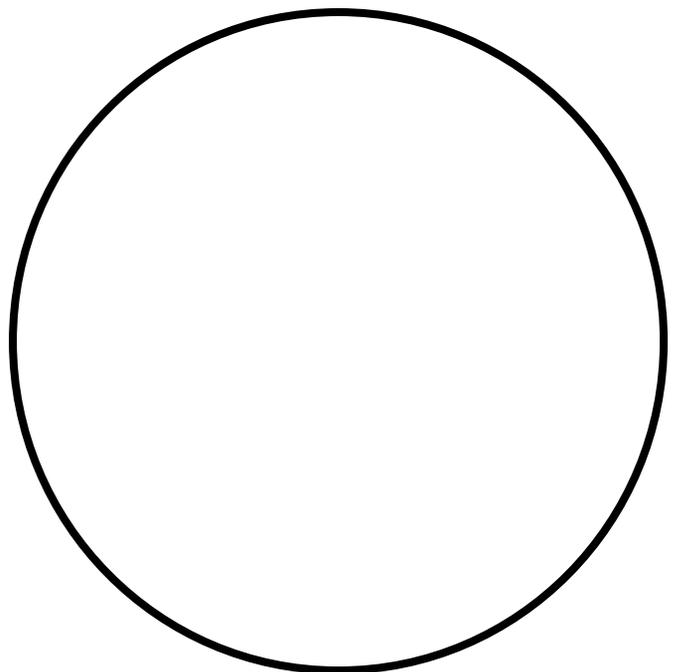


Hairy Business

Look at the stinging hairs on the leaves and stems under a microscope. Draw what you see and record your observations.



Details and observations:



Common Grass Frog Fact Sheet

Common Name: Common Grass Frog, also known as common frog

Scientific Name: *Rana temporaria*

German Name: Grasfrosch

Description: They are typically brown or greyish in color, but some individuals may be yellow or reddish. The flanks are usually yellow, the underside white, and the upper surfaces feature variable blackish markings. The large hind legs feature webbed feet; they power strong jumps and an excellent swimming ability, and are covered with dark bands, which provide camouflage.



By Ernie (Own work) [Public domain], via Wikimedia Commons

The male common frog tends, on average, to be slightly smaller than the female, and can be identified by whitish swellings on the inner digits of the front feet, which support dark pads during the breeding season that allow the male to effectively grasp a female.

Adult length: up to 8 cm

Biology: Common frogs hibernate through the winter, either at the bottom of ponds (breathing through their skin) or on land under refuges such as compost heaps. They have a natural “antifreeze” chemical in their bodies that prevents tissues from being damaged while hibernating in cold weather. Ice crystals form in such places as the body cavity and bladder and under the skin, but a high concentration of glucose in the frog's vital organs prevents freezing. During the rest of the year they hunt on land on damp nights; they feed on snails, slugs, worms, and a range of insects.

In spring, male common frogs arrive at breeding areas before females, and it is thought that individuals return to their natal ponds by following scents. There is typically heavy competition amongst males for females, involving much croaking and wrestling. Males grab a female and remain clasped to her body for days or weeks before spawning takes place. All of the frogs in a pond tend to spawn roughly within a few days of each other. The female releases 1000 to 2000 eggs, the male then releases sperm. The eggs are coated in jelly, and are popularly known as 'frogspawn'. After 10 - 14 days, the tadpoles hatch, becoming free-swimming a few days later, and undergoing metamorphosis into adults 10 - 15 weeks after hatching. Tadpoles are vulnerable to predation by a range of aquatic creatures, including water beetles, newts, and fish.

Habitat: The common frog is found in a wide range of habitats, and breeds in puddles, ditches, ponds, and large lakes, as well as urban and rural garden ponds. It has even been recorded breeding in running water.

Diet: Newly hatched tadpoles are mainly herbivorous, feeding on algae, detritus (dead organic material), plants, and some small invertebrates, but they become fully carnivorous once their back legs develop, feeding on small water animals or even other tadpoles when food is scarce. Juvenile frogs feed on invertebrates both on land and in water but their feeding habits change significantly throughout their lives and older frogs will eat only on land. Adult common frogs will feed on any invertebrate of a suitable size, catching their prey on their long, sticky tongues, although they do not feed at all during the short breeding season. Preferred foods include insects (especially flies), snails, slugs, and worms.

Range: Occurs throughout Germany and in most of Europe, with the exception of Portugal, most of Spain, Italy, and Greece.

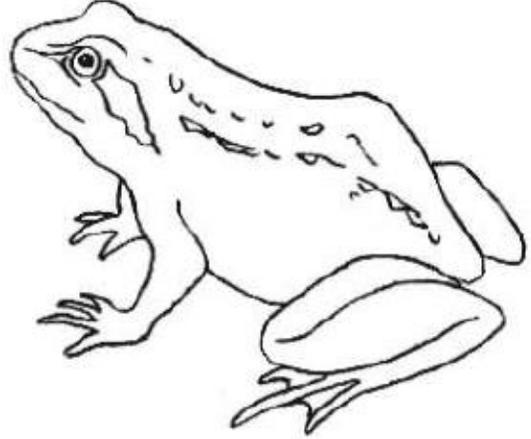
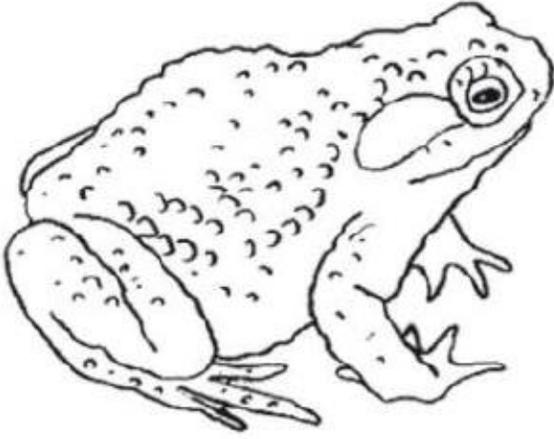
Threats: The common grass frog is not currently threatened, but populations are vulnerable to the destruction and pollution of water bodies. Crossing roads during breeding migration is dangerous for them due to vehicular traffic. Pesticides and agriculture activities can be harmful. Natural threats to adult common frogs include predation by storks, herons, blackbirds, and geese. The spawn (eggs) are eaten by ducks and newts.

Conservation Status: The common frog is classified as Least Concern (LC) on the IUCN Red List. In Germany, it has special protection status that makes it illegal to catch, hurt, or kill them.

Resources: <http://www.arkive.org/common-frog/rana-temporaria/>
https://en.wikipedia.org/wiki/Common_frog

Frog versus Toad

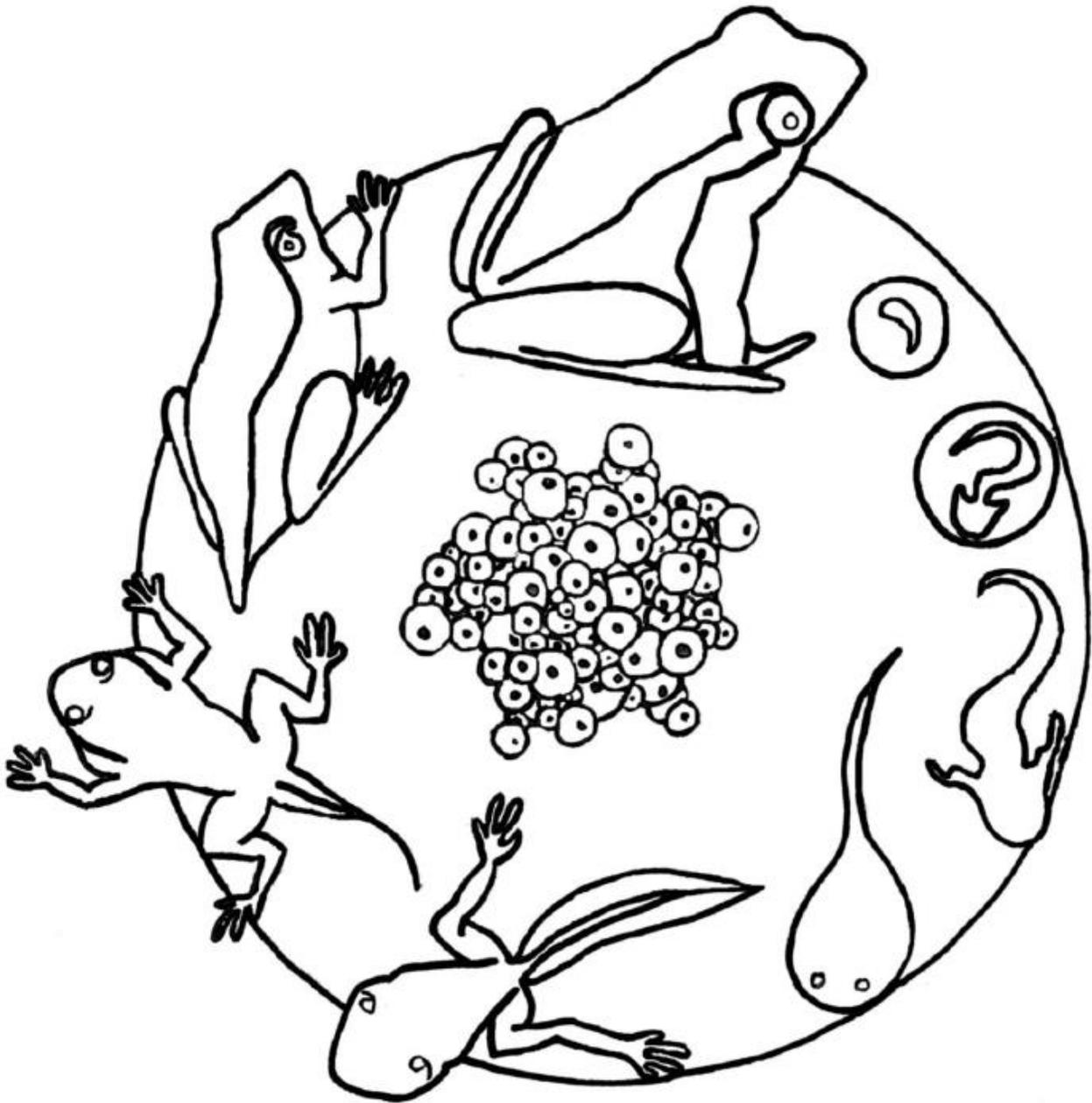
Research the differences between frogs and toads. Circle the differences and list them below.



Differences:

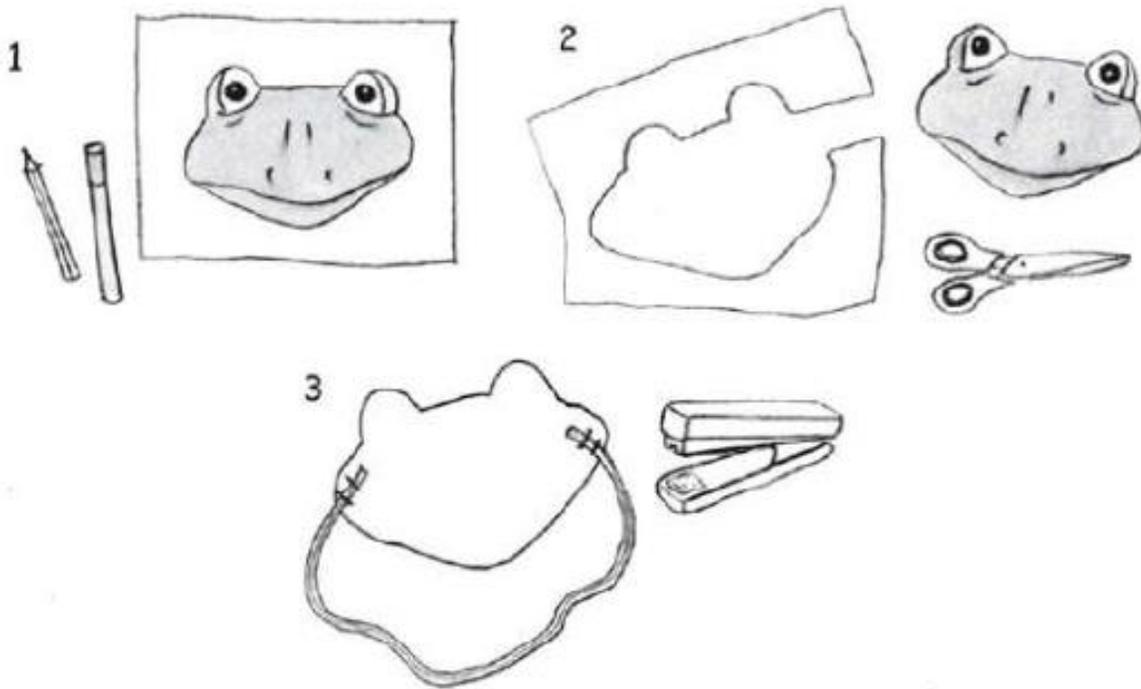
Frog Cycle Mandala

Talk about the life cycle of common grass frogs. Students can color this picture and hang it in the classroom.



Create Your Own Frog Mask

Research the differences between frogs and toads. Circle the differences and list them below.



Clean Water for Frogs

In this activity, you will build a natural water treatment plant. You can begin by discussing water pollutions and its sources and how frogs are impacted by water pollution.

1. Mix a gallon of water with either food coloring or dirt to "pollute it."
2. Fill pots with different materials.
3. Test each pot separately and then all together. What happens to the water after it filter through each medium? Discuss results. Does the water become clearer with each filtration? Relate this to a wetland and wetland functions.

Materials

- Sand
- Soil
- Clay
- Coffee filter
- Small plastic pots
- Water
- Food coloring or dirt for "polluted" water
- Metal or plastic cookie sheet
- Clear bowl to capture water

