Classification

Activity Pack

LinneanLearning

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Linnean Loan Kits

Incorporating practical activity into science lessons can be tricky at a primary level, particularly for non-specialist teachers. A recent SCORE (Science Community Representing Education) report also found that many schools lack sufficient resources for teaching practical science. These loan kits not only provide some of the equipment necessary for practical lessons, but also provide ideas and guidance for teachers - we hope you find them useful!

The activities suggested in the packs are by no means an exhaustive list of the possible lessons you could carry out using the kit provided. We have tried to provide a variety of indoor and outdoor practical activities, suitable for pupils in Key Stages 1&2. Many of the activities are cross-curricular, providing opportunities to develop skills in literacy, mathematics, art and ICT.

If you have an idea for using the equipment in this kit, we would love to hear about it! Included in the loan kit is a small notebook in which you can share top tips, ideas and activities which worked particularly well for your class. If you'd like your idea added to this activity pack then full credit will of course be given to you. Email us with your suggestions: education@linnean.org

Please check our website for full details of other kits, covering topics such as life cycles, plants and habitats.

Disclaimer: The Linnean Society is pleased to lend these kits to schools, and believes each kit to be suitable for its suggested use. However, we recommend that teachers thoroughly examine and check each kit to make sure it is fit for the purpose intended, making any risk assessment that is appropriate. The Linnean Society excludes any liability for injury or damage howsoever caused by the use of the kits, is not responsible for the standard of development or safety of any of the products used in the kits, and makes no warranty against errors and omissions in any kit or accompanying material.

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Learning Objectives & Curriculum Links

The activities in this pack encourage students to:

- Observe and recognise some simple characteristics of a variety of living things
- Develop curiosity and interest by exploring their surroundings using their senses
- Treat animals in the environment with care and sensitivity
- Work together in pairs or groups, taking turns and sharing fairly
- Communicate through conversation by sharing experiences, ideas and information
- Develop scientific and research skills, either individually or in groups

We've designed the pack to help teachers cover the following curriculum areas:

Year 1

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals

Year 4

- Recognise that living things can be grouped in a variety of ways
- Explore and use classification keys to help group, identify and name a variety of living things in the local and wider environment

Year 6

- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- Give reasons for classifying plants and animals based on specific characteristics

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What's In The Kit...

1 Flexi-Scope

6 Pond Nets

5 Pooters

5 Bug Viewing Chambers

5 Magnifying Glasses

2 Packs of Linnaeus Says Cards

2 Packs of Who Am I Cards

2 Clever Catch Balls

10 Specimens in Acrylic

11 Identification Keys

1 Activity Pack

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Activity Ideas

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Make Your Own Pooter

Activity:

Although it has a funny name, and doesn't sound very scientific, the pooter is an incredibly easy and safe way to collect minibeasts. Students will make their own pooter using basic equipment. There are two simple methods shown here - why not make both types with your class and test which works best?

Students will need:

A large diameter drinking straw
A square of muslin, j-cloth or nylon (old tights are good!)
Masking tape
Scissors

What to do:

Cut the straw across, one third away from the end. Cut a 2cm slit into the longer piece of straw and place the fabric over the end. Push the short piece of straw into the slit end of the long piece, trapping the fabric between them. You may need to gently squeeze the short straw to get started. Once you are happy with the join cover the area with masking tape. If you look through the straw you will see that the fabric has formed a net across it.

OR

Students will need:

A small jar
75cm of thin plastic tubing
A small square of muslin, j-cloth or nylon
An elastic band
A piece of card
Scissors
Sticky tape
A blob of plasticine or blu-tack

What to do:

Cut the tube into two pieces, one 50cm long and the other 25cm long. Cover one end of the short tube with the scrap of fabric and secure tightly with an elastic band. Cut the card to the shape of the top of the jar and cut two holes in it to push the tubes through. Tape the card firmly to the top of the jar. Push the tubes into it. Fix the tubes in place with the plasticine or blu-tack, making sure any gaps are sealed.

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Make Your Own Pooter

Using the pooter:

To use the pooter, find a creature that to examine. Make sure it is smaller than the opening of the pooter or it'll get stuck! Put one end of the pooter in your mouth - use the end furthest from the join if you are using the straw pooter, and use the tube with the mesh over it if you are using a jar pooter. Place the other end of the pooter a centimetre or two from the creature you are studying. Gently suck, so that the creature is trapped against the mesh or falls into the jar. If you are using a straw pooter, put your finger over the opening to keep the insect safe, then place the pooter over a container and gently tap the straw to encourage the insect to come out. If you are using a jar pooter the insect is safely trapped and you don't need to do anything else!

Take it further:

Students can now safely study their minibeast. Ask them to make a drawing of the creature, remembering to include all the legs, wings, antennae and the correct number of body segments. Can they identify the creature? They could use an identification key, a book about invertebrates or look on the internet. You may need to assist students with this - some species of invertebrates can look very similar.

To find minibeasts try looking among the leaves on the woodland floor. If students put some of the leaves on a sheet of paper and watch patiently they may see some movement. They could use a hand lens to look closer. They should find beetles, ants, worms, spiders and many other crazy creatures! Find a log or branch lying in the park. Look carefully around the log and you may see signs of life. Try rolling it over - underneath is likely to be teeming with all kinds of minibeasts. Try pulling off a small piece of loose bark (don't do this to a living tree as you will harm it). Are there different types of creatures in different areas of the log?

Tips for teachers:

Remind students to be gentle with the minibeasts, and to return insects to where they were found when students are finished.

Health and safety:

Remember that pooters should be sterilised between use by different pupils, or each pupil should use only their own pooter. If you wish to do this in school, use Milton fluid or similar.
When the kit is returned to us all pooters are sterilised before it goes to another school - you do not need to do this.

Remind students that they should not blow into the pooters, it's both unhygienic and can cause condensation which will prevent students from viewing their catch.

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Pond Dipping

Activity:

Students will have the opportunity to hunt for minibeasts living in a pond, and may be able to identify these creatures. Ponds are fascinating, with many different plants and animals to be discovered. They are an endless source of interest for children, and a valuable resource for teaching about diversity, classification, life cycles and many other topics within the curriculum.

Students will need:

Pond net or fine kitchen sieve (don't use for food afterwards!)
Containers - old ice cream tubs or washing up bowls are ideal
Bug viewer or magnifying glass
Spoon or tea strainer
Pooter
Identification key
Sketchbook or camera

What to do:

Once you get to the pond half fill your containers with pond water and set them down well away from the edge of the pond. Use the net to sweep a figure of eight pattern in the water. Try to avoid the sediment at the bottom of the pond, and the weeds at the top, as these will make it difficult to find the minibeasts in your net! Try sheltered spots - near the edge for example - as these areas will have more bugs to find. Continue sweeping for 10-15 seconds, then bring the net out of the water and take it to your large container. Turn the net inside out into the water - you may need to swish the net under the water to remove particularly stubborn bugs!

Put the net to one side and begin to examine your catch. At this point you could use the spoons, pooter or tea strainer to move interesting minibeasts into your smaller container or bug viewer for further investigation. If you are planning to use these in the classroom remember to provide plenty of water and keep the bugs cool or they will die. Keep an eye out for carnivorous bugs in your selection – these should be housed individually or they will eat your catch. Identification can be carried out by the pond, using a field guide, identification key or chart. It can also be done later in the classroom using microscopes, magnifying glasses and some research.

Take it further:

There are many ways you can use your new found knowledge. If you ran your pond dipping as an experiment, students could now draw tables and charts, write reports and draw conclusions. Students may wish to make labelled sketches or drawings, or label photographs taken during the pond dip. Your class could investigate the food chains or life cycles of the minibeasts they found, carry out another dip in a different pond for a comparison or work on a science, art and writing project using their bugs.

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Pond Dipping

Tips for teachers:

For a successful pond dip you will need to make sure the students understand what is expected of them before you head to the pond. Familiarise them with the equipment, and get them thinking about what you might find. If you have time you could show a short video (try YouTube) or explain the techniques and get everyone to have a 'practice' session. You may wish students to wear disposable gloves whilst handling bugs and pond water - make sure you check for latex allergies first, or use latex free gloves. You'll need the smallest size you can find.

Have a go yourself before you try pond dipping with your students. This will allow you to get used to the technique, and you'll easily be able to help solve any problems that crop up on the day.
Pond dipping is very exciting for young children. You might need to gently remind them to examine their catch rather than just playing by the pond! It is common for children to be carried away by large minibeasts that they find, often to the exclusion of smaller creatures that can be much more interesting. It is also likely that tree buds, catkins and the like will be incorrectly identified as minibeasts! It is worth factoring in enough time to look at what everyone else caught, or planning a follow up lesson for more in depth identification of your bugs.

Health and Safety:

Always ensure there is adequate supervision. A ratio of 1:6 is suggested for young children and a ratio of 1:10 for older children.

Before you go pond dipping you should ensure that students are suitably dressed for both the weather and the environment you will be taking them into. Sensible shoes are a must, as pond edges can be slippery and muddy - wellies or trainers are a safe bet. If it's really wet, consider some waterproof trousers or roll up trouser bottoms and tuck them into socks - not very stylish but students won't have wet trousers for the rest of the day.

Bring some towels just in case! Excited little ones may spill water from observation containers or splash in muddy puddles.

Pond dipping can be hazardous, but as long as you take care and explain these rules clearly to the students it should be a fun experience for all involved.

- **Don't fall in!** Students should kneel at the edge of the pond to dip their nets, and should move away from the edge to look at their specimens. No running or standing near the edge, and no messing about under any circumstances!

- **Don't get water in your mouth!** Pond water can carry a number of diseases, as well as containing many bugs and beasties. Everyone should keep hands away from mouths, eyes and noses until you have had a chance to wash your hands. Carry some alcohol based hand wash just in case.

- **Treat the animals with respect!** They can be very small and delicate, so handle then carefully. Don't pick them up with your fingers and return them safely to where they were found when you are finished.

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Fascinating Flexi-Scope

Activity:

Students will use the Flexi-Scope to look at a variety of materials, trying to spot important features, patterns and making comparisons where possible.

Students will need:

Flexi-scope
Computer, laptop or interactive whiteboard
Red onions - you should be able to see individual cells if you slice onions very thinly
Butterfly wings - can you see wing cells, colours, hairs and patterns?
Hook and loop tape (Velcro) - how is this linked to seed distribution?
Leaves - can you see leaf veins, cells and hairs?
Fruit and veg - you should be able to see seeds and hairs - try peppers, tomatoes and peaches
Sand - can you tell what it's made from?

What to do:

As there is only one Flexi-Scope provided, this is best run as a whole class activity. The Flexi-Scope works particularly well when connected to an interactive whiteboard, as it's easy for everyone to see.

Make sure there's a good range of materials available, then allow students to come to the computer, select a material and focus on it using the Flexi-Scope. The closer it is to the lens, the higher the magnification will be. To adjust the focus, turn the focus wheel slowly until the image is clearly displayed on the screen. If the image is too dark, switch on the LED lights by pressing the white button (but remember that they will reflect off of any specimens that are encased in acrylic). If you want to take a still image of the specimen press the green button - you'll need to be careful not to disturb the Flexi-Scope or your image will not be in focus! Have a group discussion about the features you can see, or try making some sketches.

Take it further:

Look for ways to extend beyond science when using the Flexi-Scope - the captured images could be the foundation for an excellent art or creative writing activity.

Tips for teachers:

To get started you'll need to install the accompanying software on a Windows PC (for computers running Windows 7 please chose the Vista option). This process takes around five minutes and will install two programs; 'Flexi Scope' for viewing and recording images and 'Flexi Measure' for image analysis and manipulation. Then simply plug in the Flexi-Scope unit, open the viewer and off you go! You can also download software at http://bit.ly/1x8NccX - click the Downloads tab.
Make sure you have a trial run before presenting the lesson to your students - the Flexi-Scope is very easy to use, but it can take a bit of practice to focus well.

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Clever Catch

Activity:

These inflatable balls are a fun way to test students' knowledge before starting a topic, or to sum up and evaluate learning during or at the end of a topic. The ball can be used in the classroom for organised games, or for fun in the playground, and is suitable for both large and small groups, as well as paired play. Questions are provided on a wide range of biological topics, or you can write your own!

Students will need:

Clever catch ball
Question bank

What to do:

Basic play is simple - two or more players throw the ball to one another, reading and answering the question under their left thumb at each catch. Each question is clearly numbered, and an answer sheet is provided.

You can also play in a competition format, where pairs of students try to answer the most questions within a set time limit - you'll need to appoint another student as time and score keeper.

Another variation is suitable for whole class play - divide the class into two equal lines, with students facing one another. You will need a time and score keeper. At the time keeper's signal, the first student should throw the ball to the next player in the opposite line; continue until all players have had a turn. When the last student has answered, record the time taken and the number of correct answers. Next time, try to beat your class score!

Take it further:

Ask students to write their own questions for use with the clever catch ball, based around the topic you have been studying. You could divide the class into small groups to write the questions and then take turns using each question set to test the other groups.

Tips for teachers:

The pre-printed Insect clever catch ball has a selection of 39 questions based around the characteristics of insects. The blank ball has numbered spaces designed for writing your own questions with a wet-erase marker.

WE ASK THAT YOU DO NOT WRITE ON THE BALL, AS SOME INK COLOURS CAN STAIN!

Instead, we have provided numerous sets of possible questions at the back of this pack - simply look up the appropriate number in the question list and you'll find both the question and answer. You may want to appoint one student to be the question master when playing with the blank ball.

Question sets provided: Amphibians, Birds, Dinosaurs, Fish, Insects, Mammals and Reptiles

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Linnaeus' Says

Activity:

A variation on 'Simon says' - the aim of the game is for 'Linnaeus' to give commands that uniquely identify one of the other players, thus removing that player from the game.

Students will need:

Pack of 'Linnaeus says' cards

What to do:

One student is chosen to be Linnaeus - they will give the commands to the other players. Linnaeus stands at the front, with everyone else sitting on the floor facing him/her. Hand out the cards to the other players and give them a minute or two to familiarise themselves with their animal.

Linnaeus gives instructions in the conventional 'Simon says' format: 'Linnaeus says: if you have six legs stand up'; 'Linnaeus says: if you live in the desert do a star jump' etc. If Linnaeus gives a command that applies to only **one** student, that student is eliminated from the game. If Linnaeus gives a command, but doesn't begin the instruction with 'Linnaeus says' any student who follows that command is removed from the game. Carry on until there is only one player left - they are the winner and take on the role of Linnaeus for the next round.

Take it further:

You could ask students to carry out some research into other animal species and make their own cards to use in play. Students may also wish to take the information from the back of the card, combine it with their own research and create a set of 'Top Trumps' style cards.

Tips for teachers:

The information given on the back of each card may help players decide if a command applies to them. You may need to circulate among the children and ensure that they are correctly following Linnaeus' commands - especially with regards to number of legs! Younger groups may wish to focus on colour, habitat or ability to fly, swim etc. For older and more able classes, encourage Linnaeus to use more technical scientific language - if you are a mammal stand up, if you're an invertebrate wave your arms etc.

Note: The animal cards provided in the pack are; sheep, pig, fly, mandarin duck, bottlenose dolphin, monarch butterfly, horse, scarlet macaw, hercules beetle, humpback whale, giant tortoise, seahorse, kangaroo, wasp and green sea turtle.

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Who Am I?

Activity:

Students use their questioning and reasoning skills to discover which animal they have been given.
Note: This game requires an even number of players.

Students will need:

A pack of 'Who am I' cards

What to do:

Each player is allocated a card with an image of an animal - they are **not** allowed to see the image. Ensure that cards are allocated in matching pairs, or the game will not work!

The card should either be stuck to the player's back, or attached to a headband for them to wear. Players then circulate among the group, asking questions about their animal. Each player can only ask another player one question - and they cannot ask 'What animal am I?' Players might wish to ask about colours, habitats, number of legs, ability to fly etc.

Once the player has discovered which animal they are, they should find their matching partner - the first pair is the winner.

Take it further:

As the animals provided in the pack of cards are well known with quite distinctive features, you could develop a slightly more difficult version of the game with your class. Students could research a range of more unusual animals and then play the same game with their own cards.

You could try a version of the game with no images to help - simply write the animals you've chosen on stickers and stick them to each student's back. This is trickier for students, as it relies on them remembering the features of the animal in question, not just checking on the picture!

Note: The animal cards provided in the pack are; octopus, panda, frog, penguin, parrot, crab, snail, fox, snake, chameleon, clownfish, beetle, bee and koala.

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We're Going On A Bug Hunt

Activity:

Students carry out a 'bug hunt' around their school grounds or in the local park, then classify the creatures using identification keys.

Students will need:

Magnifying glasses
Pooters & Bug viewers
Large tray or large sheet (white is best)

What to do:

Start by looking around bushes, at the base of trees and among the flowers. Place your sheet or tray under a bush or tree and shake a branch - the bugs will fall off of the branches and on to your sheet or tray. You might find shield bugs, spiders and ladybirds. If you are in a woodland area, try turning over any small rocks or logs, you may be able to find some centipedes, spiders or woodlice. Always put rocks and logs back exactly where you found them. Have a look at some flowers - can you see any bees, hoverflies or butterflies?

Take it further:

If you have time, you could set up some pitfall traps around the school grounds. Make sure the traps are checked every day for any minibeasts that have fallen in. If you are taking the minibeasts into the classroom for further investigation, make sure you provide them with some damp earth and leaves and don't keep them too long or they will become stressed. This activity can be on going, but remember to remove the pitfalls completely once you have finished.

Tips for teachers:

Most children are familiar with the rhyme 'We're going on a bear hunt,' so why not use this variation as an introduction to an outdoor bug hunting adventure with your class. You could use the rhyme to start a discussion about what students know about minibeasts, where you might find them and why they are important to us. Try looking around the classroom for signs of minibeasts activity. Can you find spider webs, dead flies or holes in the leaves of the houseplants?

Oh my! A grasshopper! A big, green grasshopper, hopping around the tree, BOING, BOING
Refrain
Oh my! A ladybug! A red, spotted ladybug, crawling through the grass, SHHH, SHHH
Refrain
Oh my! A butterfly! A pretty, orange butterfly, floating in the sky, WHOOSH, WHOOSH
Refrain
Oh my! A bee! A black and yellow bee, flying over flowers, BUZZZZ, BUZZZZ
Refrain
Oh my! A spider! A big black spider, creeping on ME! CREEP…CREEP… SCREAM

Refrain:
We're going on a bug hunt!
We're going to catch some big bugs.
What a sunny day.
Are you ready? OK!

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I'm Thinking Of...

Activity:

The object of the game is for players to guess the name of an animal using clues provided.

Students will need:

Their imaginations!

What to do:

One player silently thinks of an animal without telling other players. He then says, "I'm thinking of an animal, and it has… (say one of its characteristics, for example, six legs)". The other players take turns guessing which animal he/she is thinking of.

After each incorrect guess players get another clue. The player who guesses the animal correctly will decide the next animal for other players to guess. Alternately, children can take turns so each person gets a chance to choose the animal.

Take it further:

This game can be adapted for older children by making the clues more complex. For younger children, clues should be visual concepts such as colours and size, or whether the animal has wings, scales, or fur. For older children, include abstract clues such as where the animal lives, what it eats, or its behaviour.

Tips for teachers:

Depending on the age and behaviour of your class, you may wish to ask the player who is thinking of the animal to tell you which animal they are going to use before you begin the game. This prevents players from changing their mind half way through when someone is close to guessing the correct answer!

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Sort And Share

Activity:

Students will sort items choosing their own categories and then share their thinking with others.

Students will need:

A selection of items to sort - these could be rocks, shells, shapes, pictures or anything else that comes to mind. Individually wrapped sweeties work very well!

What to do:

Ask the students to sort the items into categories of their own choosing. After a minute or two, stop and ask a few students to share their sorting strategy. Tell students that this time they have to use a different strategy. Again, after a minute or two ask another few pupils to share their ideas. Carry on until everyone has had a turn at sharing their thoughts, or you have run out of ways to categorise.

Take it further:

This leads well into a discussion about how scientists categorise and identify plants and animals. Students will have noticed that there were a variety of thoughts on how best to categorise the items they were given - you could use this idea to explain the variety of classification systems which have been used over time, and how they are always changing as new knowledge emerges.

It's also a nice start to discussion about Carl Linnaeus and the development of his binomial classification system.

Tips for teachers:

If you do decide to use sweeties for sorting, make sure the students know they are not allowed to eat the sweets until the end of the activity! You should also check for any allergies or dietary issues beforehand.

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Classifying Your Classmates

Activity:

Student will observe, measure and record a range of variables among the class, including height, shoe size, hand span, hair colour, eye colour and age.

Students will need:

Pencil
Paper
Graph paper
Measuring tapes
Metre sticks

What to do:

Divide the class into groups of 4-5 students and explain that they will be measuring some differences between themselves and then creating a classification key. Ask them to carefully carry out the measuring and record all of their results - they'll need to do this clearly.

Collate a class data set on the board, and ask students to use the data to produce the following:

- a bar graph showing hair colour
- a line graph showing height
- a pie chart showing shoe size

In their groups students should work together to create a dichotomous branching key that will identify each student within the group. They should use their measurements from earlier in the lesson.

Take it further:

With an advanced class you could use the height line graph to talk about variation among populations, distribution curves and even statistical outliers.

Tips for teachers:

Remember that you may not get a normal distribution curve (bell curve) due to the age of your students - it's likely that many are fairly similar in terms of height and shoe size!

To measure hand span it can be easier for students to draw around their hand on squared paper and then measure the span with a ruler.

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Crazy Creature Classification

Activity:

Students create a crazy creature by playing the well known drawing game 'Consequences'. They then have to decide where their creature lives and attempt to classify their creature based on the physical characteristics that can be seen.

Students will need:

Paper & pencils

What to do:

Everyone sits in a circle with a piece of paper and a pencil.
Fold the paper in four, so that the folds run widthways.
On the top panel draw an animals head, making the two lines of the neck carry over into the second panel.
Players fold the panel so it cannot be seen, and pass it to the person on their left.
The next player draws the top of the animal's body and passes the paper on.
The third player draws the rest of the body, and the fourth draws the legs and feet.
The last player opens up the creature and decides where it might live based on the physical characteristics that can be seen. Does the animal have feet, wings, flippers? What does it eat and how? Does another animal hunt it? Once they've made their decisions, give the crazy creature a binomial name. Share with the rest of the class.

Take it further:

Try constructing a food chain or web from the collection of crazy creatures. You'll need to add in some plants and possibly a few real animals!
Can you construct a key to identify each creature?

Tips for teachers:

You could try this variation for older or more able students:

Students use their knowledge of variation and classification to design a new creature that is uniquely adapted to its environment. First, think about the environment the creature lives in – is it hot or cold, wet or dry? Are there trees, plants, other animals? Next they'll need to decide whether the creature is a mammal, reptile, fish, bird or insect. Think about the features the creature will need to survive – for example fins or flippers for swimming, fur or feathers for warmth, wings for flying, legs for walking etc. What does the creature eat and how does it get its food? Once students have decided on their creature, they can try drawing a picture of it – they might change your mind about some of its features once they see it on paper! When they are happy, try making a junk models of they creatures. They could also make a model of its environment and create a classroom display.

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Unnature Trail

Activity:

Students will investigate camouflage in the natural environment by attempting to find a variety of objects. This activity can lead onto discussions of mimicry and adaptation.

You will need:

20 manmade objects - Prepare by hiding the objects in a small area outdoors. Ensure they are not totally obscured and arrange them so that some blend into the background, but some are bright enough to be easily seen.

What to do:

Allow all players to wander around the area, a few at a time. They should try to spot as many objects as possible. When they think they've found all the hidden objects, they should list them. Tell them if they haven't found them all, and allow participants the chance to look again.

When all the objects have been discovered, discuss which were the most difficult to spot and why. Talk about camouflage and colour in the natural world.

Take it further:

You could try this similar activity:

Cut up lots of short lengths of wool (around 5cm long), in a variety of both bright and dull colours. Have a look at the area you will use for the activity; for younger students a grassy area is fine; KS2 and over would benefit from a hedge, trees or shrubs too. Set up by scattering the wool around the area, at different heights if possible.

Tell the students that you are a baby bird (or other animal!) and that they are all parent birds who need to feed you with woolly worms/caterpillars. Explain that in a minute, they must look for worms in the area you defined, and stick them on to a strip of Velcro or sticky tape that you are holding. Because you are a only a baby bird, you can only eat one worm at a time - so students can only pick up and bring back one worm at a time.

Allow students time to collect the woolly worms. As they bring them back to the baby bird, they can stick them onto the Velcro or sticky tape, but try to make sure they are stuck on in the order that they are found.

Once all the worms are found, gather the students so that they can see your strip of Velcro or sticky tape with woolly worms on. Ask them what the differences are between the colours of the first worms they found compared to the colour of the last worms they found - they should be bright first, then getting more dull.

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Wriggly Wormery

Activity:

Students will create a classroom wormery, which they can study over time. They'll be able to observe changes in soil structure and worm behaviour.

Students will need:

Large transparent bowl - plastic is a good idea if you can find one!
Sand
Soil
Leaves
Worms

What to do:

Fill the bowl with alternating layers of sand and soil - the layers should be about 2.5cm deep. Put a small layer of leaves on top, these will be the food source for your worms You could also feed your worms vegetables, fruit or shredded paper. Add enough water to damp the soil, but be careful - you don't want the worms to drown!

Next you need to find the worms. To encourage them to come to the surface, pour water gently from a watering can, or try sticking a garden fork into the ground and wiggling it. If neither of these work you'll need to dig for them! Add the worms to your wormery.

Keep the wormery someplace cool and dark. It's best to keep it under a slightly damp cloth, worms don't like bright light and it can make them inactive. If the wormery begins to look dry sprinkle a little water on to it, but not too much.

Check every day - you'll see the worms moving around, and tunnels will begin to appear. Eventually the layers of sand and soil will begin to mix together, and leaves will get pulled into the tunnels. You could take a photographic record of the changes in your wormery over time, or make scientific sketches
Once you've finished with the wormery you should return the worms to where you found them.

Tips for teachers:

Worms are most active in warm moist conditions, ideally between 18-25ºC (64-77ºF)
Their activity noticeably declines below 10ºC (50ºF) and above 30ºC (86ºF)

A wormery should be kept in a cupboard or a sheltered area of the classroom where it gets neither too cold in the winter nor too hot in the summer - remember when keeping wormeries indoors, that they can sometimes produce odours if they are neglected

Worms prefer well-ventilated conditions to live in, and they dislike being waterlogged as this restricts their air supply

CLASSIFICATION

Picture Those Plants

Activity:

Students will draw a plant, looking closely at the structure of the plant and its features. They will compare a range of plants and begin to classify them based on what has been observed.

Students will need:

A flower or plant (preferably still growing!) - try to get a range of different plants for the class
A pencil
Paper

What to do:

Draw a picture of your plant. Don't forget to include the leaves. You might want to look at the roots too, but be careful you don't snap them.

In Linnaeus' time there was no photography, so botanists had to carefully document the plants they were studying by drawing them. It was important to be as accurate as possible - you don't want to get two different plants mixed up because of rushed drawing.

Write out the key features of your plant. Look at the overall shape and height first, then start looking at the details. It might help to ask yourself questions like:

- How tall is the plant?
- What colour is it?
- Does it have a smell?
- What shape are the leaves?
- Are there veins visible on the leaves? What patterns do they make?
- How many petals are on each flower?

As a class, have a look at the different features you have picked out as being important. Do all of the plants have all of the features? Can students put them into groups based on the features they've seen? This is the first step in classifying them!

Take it further:

Why not try studying the seeds of different plants and have a discussion about seed dispersal mechanisms. Ask students about different types of plants that they know. Explain that flowering plants are only one of the groups of plants that we know. Have a look at mosses, algae and ferns - these all belong to other plant groups.

You could arrange a visit to a botanical garden and try drawing some exotic plants. Once you get back to the classroom compare them to your original drawings - are there any differences? Why are these differences there? Can students relate the feature of the plant to the environment in which it lives?

CLASSIFICATION

Find That Specimen!

Activity:

Students will look at a range of specimens encased in acrylic resin, then use their observation and deductive skills to decide which clue card belongs to which specimen

Students will need:

Resin specimens
Clue cards

What to do:

Lay the specimens out on a table. Divide the students into five small groups and distribute the clue cards among the groups. Each group must take it in turn to come to the specimen table and decide which specimen their clue applies to. Once they've done so, they should put the clue next to the specimen. Once all the clues are done, get together as a class and discuss the specimens. Are there other features that could be used as clues? Students may wish to look at them using the Flexi-Scope or handheld magnifying glasses.

Take it further:

In small groups ask students to research the specimens further, either in books or on the internet. Then, ask them to write new clues to challenge the class. They should try to use less obvious features (but that may be seen with appropriate magnification) or things that cannot be seen at all. Try the game again - is the outcome different?

Tips for teachers:

The specimens are encased in a very strong acrylic resin. There is very little risk of damage occurring to the specimen, however, that does not mean they can be thrown around! Remind students that they need to be careful not to drop the specimens on hard surfaces, and if they are using magnification, the specimen should be on the table. Students may wish to place a sheet of white paper under the specimen to make features clearer.

Some of your students may be slightly timid around the specimens - particularly the centipede, spider and scorpion. You may need to gently remind students that the specimens are dead, and have been preserved in this way so that they are safe to handle. There is no risk to the student from touching the specimen, and the creatures cannot escape from the acrylic!

Note: The specimens provided in the kit are; butterfly, centipede, dragonfly, fiddler crab, grasshopper, chafer beetle, moth, scorpion, spider, wasp

CLASSIFICATION

It's All Relative

Activity:

Students find pictures of living things and arrange them in collages, categorizing them according to which they think are most closely related.

Students will need:

Scissors
Paper
Glue
Lots of magazines - Nature magazines have many pictures of living things. Most pictures will probably be of arthropods and vertebrates, but if you collect enough magazines you should have a reasonable range of images.

What to do:

The idea behind this activity is to encourage students to look closely at a wide variety of animals and compare their appearances. It's important that students understand the one of the first steps in classification is to look at the appearance of an organism.

Each student should cut out 10 images of different living things and group them according to how closely related he/she thinks they are. As this is going on, circulate around the room, asking students how they made their decisions. They may surprise you with how reasonable their thinking is, even if their conclusions do not conform to modern scientific thought!

Have students glue their creations to large sheets of paper and label the groups in any way they choose.

Take it further:

Students could carry out some research into modern classification systems and try to determine the validity of their decisions.

Tips for teachers:

While deciding which organisms they think are related, students may make decisions that you disagree with. Use your discretion when deciding how much correction you wish to give them.

Keep in mind that this exercise is about students learning a process, so the product doesn't need to be perfect in order for the lesson to be a success. However, glaring errors may require some further explanation!

SR-1565

OTHER CLEVER CATCH® TITLES AVAILABLE:

Clever Catch®
Amphibians

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To order or to request a catalog of additional educational materials, contact your local school supply dealer or American Educational Products LLC at 1.800.289.9299.

Your **Amphibians Clever Catch®** provides an excellent way for children to learn about the basics of Amphibians. There are 36 questions included. Clever Catch® can be used at school in organized classroom activities. It can also be used on the playground or at home. Grades K-2.

CLEVER CATCH® AT HOME OR ON THE PLAYGROUND

Basic play for Clever Catch® is simple. Two or more players toss the ball to each other, answering the problem underneath or closest to their left thumb. Each problem is numbered and enclosed in its own space, assuring the child will know which problem to answer. Answers are provided in this insert for independent play by students.

PLAYOFFS:

Pairs of children toss the ball back and forth for one minute answering problems. A scorekeeper tallies which team has the most correct answers in the time limit.

CLEVER CATCH® IN THE CLASSROOM

BEAT THE CLOCK:

The entire class plays cooperatively as one team, trying to better its own time and number of correct answers in each game.

DIRECTIONS:

1. Choose a timekeeper. You also will need a monitor - teacher or student - to keep track of correct answers.
2. Divide the class into two lines of equal length, students facing each other.
3. At the timekeeper's signal, toss Clever Catch® to the first student. As quickly as possible, this student reads and answers the problem underneath his/her left thumb.
4. This student then tosses Clever Catch® to the student directly across from him/her in the second line. This student reads and answers the problem under his/her left thumb.
5. Play continues until all students in both lines have had a turn. When the last student has answered, the time and correct number of answers are recorded.

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	Question	Answer
1.	How many eggs can a female frog lay?	Up to 20,000
2.	How do tadpoles protect themselves?	They swim very fast
3.	What kind of food do frogs like to eat?	Small insects that move
4.	Why do some frogs puff up, change color, or secrete poison?	To protect themselves
5.	Where do frogs lay their eggs?	In the water
6.	What is the animal called that hatches from a frog egg?	Tadpole
7.	As frogs mature, do they lose their legs, eyes, or tail?	Tail
8.	Does an adult frog use its gills, lungs, or spiracle to breathe?	Lungs
9.	What do many amphibians do to call to their mate, warn other amphibians, or frighten their enemies?	Make loud, strange sounds
10.	What do tadpoles eat?	Plants
11.	Do baby amphibians look like small adult amphibians?	No
12.	What do you call the change that amphibians go through from birth to adulthood?	Metamorphasis
13.	How can you tell an amphibian from other water animals?	They have smooth skin - no scales, fur, feathers, or shell
14.	Does an adult frog have a tail?	No
15.	Are amphibians warm-blooded or cold -blooded ?	Cold-blooded
16.	What does it mean to be cold-blooded?	Body temperature changes with the surroundings
17.	Caecilians (see SIHL lee uhnz) are part of the amphibian family. How are they different from other amphibians?	They have no legs and look like worms
18.	What are the life stages of a frog?	Egg, tadpole, froglet, frog
19.	Salamanders have _____ but adult frogs do not.	A tail
20.	Animals with backbones are called _____.	Vertebrates
21.	True or False: Some amphibians breathe through their skin.	True
22.	Frog larvae are called _____.	Eggs
23.	Does a newly hatched amphibian have legs?	No
24.	Does a newly hatched amphibian breathe using lungs or gills?	Gills
25.	What is a froglet?	Third stage of becoming a frog
26.	What disappears as a frog grows?	Its tail
27.	Frog eggs are covered with what?	Clear jelly
28.	True or false: Amphibians can live in cold climates.	False
29.	What is another name for tadpole?	Polliwog
30.	Are amphibians more active during the night or day?	Night
31.	Amphibians are the only animals that live in _____ for part of their life and on land for another part.	Water
32.	Amphibians live on or near _____.	Water
33.	True or False: Frogs and toads often shed their skin and eat it.	True
34.	True or False: Amphibians take care of their babies when they are born.	False
35.	What does an adult salamander have that an adult frog does not?	Tail
36.	How are frogs and toads different?	Frogs have moist skin, toads have bumpy dry skin

SR-1448

OTHER CLEVER CATCH® TITLES AVAILABLE:

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SR-1402 Multiplication
SR-1403 Fractions, Decimals, & Percents
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Clever Catch®
Birds

Your **Birds Clever Catch®** provides an excellent way for children to learn about the characteristics of birds. There are 36 facts included. Clever Catch® can be used at school in organized classroom activities and in small or large groups. It can also be used on the playground or at home. Grades K-3

CLEVER CATCH® AT HOME OR ON THE PLAYGROUND

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PLAYOFFS:

Pairs of children toss the ball back and forth for one minute answering problems. A scorekeeper tallies which team has the most correct answers in the time limit.

CLEVER CATCH® IN THE CLASSROOM

BEAT THE CLOCK:

The entire class plays cooperatively as one team, trying to better its own time and number of correct answers in each game.

DIRECTIONS:

1. Choose a timekeeper. You also will need a monitor - teacher or student - to keep track of correct answers.
2. Divide the class into two lines of equal length, students facing each other.
3. At the timekeeper's signal, toss Clever Catch® to the first student. As quickly as possible, this student reads and answers the problem underneath his/her left thumb.
4. This student then tosses Clever Catch® to the student directly across from him/her in the second line. This student reads and answers the problem under his/her left thumb.
5. Play continues until all students in both lines have had a turn. When the last student has answered, the time and correct number of answers are recorded.

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	Question	Answer
1.	What is the only group of animals that has feathers?	birds
2.	Do all birds have feathers?	yes
3.	Do all birds have teeth?	no
4.	How many feet do birds have?	two
5.	Do all birds have wings?	yes
6.	Can all birds fly?	no
7.	Baby birds hatch out of_____.	eggs
8.	Some birds fly to a warmer climate in the winter. This is called_____.	migration
9.	Name a bird that cannot fly.	ostrich, emus, kiwi, rhea, some parrots
10.	A baby chicken is called a_____.	chick
11.	Is a bat a bird?	no, it's a mammal
12.	Many birds build a _____ to lay their eggs and raise their young.	nest
13.	The mouth of a bird is called the_____.	beak
14.	How do birds keep from getting cold?	their feathers help keep them warm
15.	Are birds warm-blooded?	yes, their body temperature remains the same
16.	Name a bird with a long, pointed beak.	woodpecker, pelican, heron
17.	Name a bird with a flat beak called a bill.	duck
18.	Which bird beats its wings up to 80 times a second?	hummingbird
19.	What bird is a symbol for America?	the Bald Eagle
20.	Is a "Flying Squirrel" a bird?	no
21.	Which bird is more colorful, the male or the female?	male
22.	Birds are vertebrates, they have strong hollow_____.	Bones
23.	Some birds have very good_____ so that they can see their food from far away.	eyes (sight)
24.	A group of birds is called a_____.	flock
25.	Is a dragon fly a bird?	no, its an insect.
26.	What is a baby eagle called?	eaglet
27.	Do bird eggs have a hard or soft shell?	hard
28.	What is a baby duck called?	duckling
29.	What is the fastest, running bird?	ostrich
30.	What is a bird that lives in Antarctica?	penguin
31.	How many wings does a bird have?	two
32.	What is your favorite bird?	open answer
33.	Why are birds important?	They eat insects, pollinate flowers, distribute seeds, etc.
34.	Name a bird that can swim.	duck, goose, swan, etc.
35.	What do we call it when a baby bird comes out of an egg?	hatching
36.	Where would you fly if you were a bird?	open answer

SR-1418

OTHER CLEVER CATCH® TITLES AVAILABLE:

Clever Catch®
Dinosaurs

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Your **Dinosaurs Clever Catch®** provides an excellent way for children to learn about the creatures that roamed the Earth millions of years ago. There are 70 facts included. Clever Catch® can be used at school in organized classroom activities. It can also be used on the playground or at home. Grades 5-8.

CLEVER CATCH® AT HOME OR ON THE PLAYGROUND

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PLAYOFFS:

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CLEVER CATCH® IN THE CLASSROOM

BEAT THE CLOCK:

The entire class plays cooperatively as one team, trying to better its own time and number of correct answers in each game.

DIRECTIONS:

1. Choose a timekeeper. You also will need a monitor - teacher or student - to keep track of correct answers.
2. Divide the class into two lines of equal length, students facing each other.
3. At the timekeeper's signal, toss Clever Catch® to the first student. As quickly as possible, this student reads and answers the problem underneath his/her left thumb.
4. This student then tosses Clever Catch® to the student directly across from him/her in the second line. This student reads and answers the problem under his/her left thumb.
5. Play continues until all students in both lines have had a turn. When the last student has answered, the time and correct number of answers are recorded.

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	Question	Answer
1.	Name the geologic era of the Dinosaur Age.	Mesozic
2.	How long ago did Tyrannosaurus Rex walk the Earth?	65 million years ago.
3.	Where is the Dinosaur National Monument?	Colorado, Utah border
4.	On how many continents have dinosaurs been found?	All 7 of them
5.	Name the earliest geologic period of the dinosaur age.	Triassic
6.	Name the most recent geologic period of the dinosaur age.	Cretaceuos
7.	What do we call someone who studies fossils?	Paleontologist
8.	Dinosaur bones are found in what family of rocks?	Sedimentary
9.	Dinosaurs that only eat meat are _____.	Carnivores- meat eaters
10.	Name the 3 ages when dinosaurs lived.	Triassic, Jurassic, Cretaceous
11.	TRUE or FALSE: Plesiosaurs are marine reptiles, not dinosaurs.	TRUE
12.	Dinosaurs that eat only plants are _____.	Herbivores- plant eaters
13.	TRUE or FALSE: Dinosaurs are belieed to have become extinct because their brains were too small.	FALSE
14.	TRUE or FALSE: Dinosaurs are believed to have been slow, sluggish, and stupid.	FALSE
15.	TRUE or FALSE: Dinosaurs were reptile-like.	TRUE
16.	TRUE or FALSE: Dinosaur fossils include their eggs, tracks, and nests.	TRUE
17.	TRUE or FALSE: Dinosaurs walked like reptiles.	FALSE
18.	TRUE or FALSE: Dinosaurs dragged their tails.	FALSE
19.	TRUE or FALSE: Allosaurus ate Triceratops.	FALSE; Allosaurus lived in the Jurassic and Triceratops lived in the Cretaceous period.
20.	TRUE or FALSE: Some dinosaurs used their tails for defense.	TRUE
21.	TRUE or FALSE: A meteorite is believed to have hit the Earth, ending the dinosaur age.	TRUE
22.	TRUE or FALSE: Some dinosaurs lived in the sea while others flew in the skies.	FALSE; Dinosaurs roamed the land while Pterosaurs flew and many species of reptiles lived in the sea. All of these were REPTILES.
23.	TRUE or FALSE: All dinosaurs lived in the Palezoic era.	FALSE
24.	TRUE or FALSE: Some dinosaurs may have used their crests to communicate.	TRUE
25.	TRUE or FALSE: Humans hunted dinosaurs.	FALSE
26.	TRUE or FALSE: All fossils are dinosaurs.	FALSE
27.	TRUE or FALSE: Dinosaurs behaved more like reptiles than mammals.	TRUE
28.	TRUE or FALSE: Dinosaur fossils have been found in every state.	FALSE
29.	TRUE or FALSE: Most dinosaurs were the same color.	Neither... nobody really knows.
30.	TRUE or FALSE: Some dinosaurs traveled in large groups.	TRUE
31.	TRUE or FALSE: Dinosaurs lived on the Earth for over 160 million years.	TRUE
32.	TRUE or FALSE: All dinosaurs were huge monsters.	FALSE
33.	TRUE or FALSE: The smallest dinosaur skeleton ever found was smaller than a chicken.	TRUE; a baby Mussaurus was the size of a robin!
34.	TRUE or FALSE: Dinosaurs are extinct.	TRUE
35.	TRUE or FALSE: The largest dinosaur was likely to have weighed over 100 tons.	TRUE
36.	TRUE or FALSE: Dinosaur tracks were found in the state of Connecticut.	TRUE
37.	TRUE or FALSE: Herbivores eat Carnivores.	FALSE
38.	TRUE or FALSE: The word DINOSAUR means "big creature".	FALSE; it means "terrible lizard".
39.	TRUE or FALSE: There were more meat eating dinosaurs than plant eaters.	FALSE
40.	TRUE or FALSE: Tyrannosaurus scavenged for food.	TRUE
41.	TRUE or FALSE: Dinosaurs with sickle-shaped claws were herbivores.	FALSE
42.	TRUE or FALSE: Pterodactyls were flying dinosaurs.	FALSE
43.	TRUE or FALSE: Woolly Mammoths were dinosaurs with tusks.	FALSE
44.	TRUE or FALSE: Mammals appeared on Earth after the dinosaurs.	FALSE; they lived concurrently.
45.	TRUE or FALSE: Dinosaur footprints are a type of fossil.	TRUE
46.	TRUE or FALSE: Crocodiles lived at the same time as dinosaurs.	TRUE
47.	TRUE or FALSE: Dinosaurs are classified based upon their hip structure.	TRUE
48.	TRUE or FALSE: The largest dinosaurs were meat eaters.	FALSE
49.	TRUE or FALSE: Some dinosaurs did not use teeth to chew plants that they ate.	TRUE; some used Gastroliths
50.	What dinosaur is known as "Tyrant King"?	Tyrannosaurus rex
51.	What dinosaur is named for Alberta, Canada?	Albertosaurus
52.	When and where was the Tyrannosaurus rex named Sue found?	1990 in South Dakota
53.	What does Velociraptor mean?	"speedy thief"
54.	How many years ago did the Triceratops walk the Earth?	65-90 million years ago, or the late Cretaceous period.
55.	In which geologic period did the largest known dinosaur live?	Jurassic
56.	What does the term "dinosaur" mean?	Terrible Lizard
57.	What does the name Triceratops mean?	Three-horned face
58.	What is special about the thumbs of Iguanodon?	They are pointed spikes.
59.	Which dinosaur has a name meaning plated back.	Stegosaurus
60.	Name the dinosaur with the longest meat eating teeth.	Tyrannosaurus rex
61.	Name a dinosaur with a fin back.	Spinosaurus
62.	Which are not dinosaurs? A. Pterosaur; B. Mososaur; C. Plesiosaur	All (A, B, and C)
63.	Which is a dinosaur? A. Woolly Mammoth; B. Stegosaurus; C. Ichthyosaurus	B. Stegosaurus
64.	Which dinosaur is carnivorous? A. Ceratosaurus; B. Ankylosaurus; C. Brontosaurus	A. Ceratosaurus
65.	Which dinosaur is herbivorous? A. Oviraptor; B. Velociraptor; C. Mamenchisaurus	C. Mamenchisaurus
66.	Which dinosaur is carnivorous? A. Iguanodon; B. Diplodocus; C. Apatosuarus	C. Apatosuarus
67.	Which dinosaurs are primarily bipedal? A. Daspletosaurus; B. Torosaurus; C. Tyrannosaurus	A. Daspletosaurus, and C. Tyrannosaurus
68.	Which dinosaur is primarily a quadruped? A. Pachycephalosaurus; B. Albertosaurus; C. Brachiosaurus	C. Brachiosaurus
69.	Describe some defense characteristics that dinosaurs had against predators.	Armored plates, spikes, horns, tails, their large size, travelling in herds.
70.	Describe some "tools" that carnivorous dinosaurs had for hunting and attacking prey.	serrated teeth, sharp claws, speed, some traveled in packs, etc.

SR-1564

OTHER CLEVER CATCH® TITLES AVAILABLE:

Clever Catch®
Fish

SR-1401	ABCs
SR-1402	Multiplication
SR-1403	Fractions, Decimals, & Percents
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Your **Fish Clever Catch®** provides an excellent way for children to learn some basic facts about fish. There are 36 questions included. Clever Catch® can be used at school in organized classroom activities. It can also be used on the playground or at home. Grades K-2.

CLEVER CATCH® AT HOME OR ON THE PLAYGROUND

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	Question	Answer
1.	A group of fish is called ____.	a school
2.	What do fish use to breathe under water?	gills
3.	What covers and protects a fish's body?	scales
4.	True or False: Fish only live in fresh water.	FALSE
5.	What do fish use to help them swim?	fins
6.	True or False: Most fish can lay thousands of eggs at a time.	TRUE
7.	Fish are vertebrates. This means they have _____.	backbones
8.	All fish must live in an aquatic environment. This means they live in _____.	water
9.	What is the largest known fish?	whale shark, length in excess of 46 feet and weighs up to 15 tons
10.	True or False: The seahorse is a fish.	TRUE
11.	True or False: The Moray Eel is not a fish.	FALSE
12.	How does a puffer fish protect itself from its enemies?	It puffs up to sometimes double its size to intimidate predators from eating it.
13.	How can fish hide from their predators?	camouflage, change color, etc.
14.	How are most fish born?	they hatch from eggs.
15.	Scientists estimate that there are this many species of fish in the world: a.20 b.200 c.2400 d.24,000	d. 24,000
16.	What is the smallest known fish?	Tiny Goby, 1/2" in length
17.	True or False: Most fish do not have eyelids.	TRUE
18.	What is a person who studies fish called?	Ichthyologist {ik-thee-ol-uh-jist}
19.	Why don't fish chew their food?	They cannot eat and breathe at the same time, it interferes with water passing over their gills.
20.	Why do fish lay so many eggs at once?	many get eaten by predators/increases chance of survival.
21.	True or False: Fish are found in every body of water throughout the world.	FALSE. Some bodies of water, like the Dead Sea, have no living creatures due to its high salinity.
22.	True or False: Fish can only be found in the first 50 feet of water.	FALSE, fish live at all depths of water.
23.	Fish that live in oceans and seas live in ____ water.	salt
24.	True or False: Some species of fish can live in both fresh water and salt water.	TRUE, i.e. Salmon, White Perch, Striped Bass
25.	Why do fish have scales?	external protection
26.	How can the age of some fish be determined?	you count the rings on their scales
27.	Why are fish generally shaped the same?	their streamlined shape is less resistant as they swim through the water.
28.	Can some fish swim backwards?	yes, many can.
29.	Do some fish see in color?	yes
30.	Name two reasons some fish bury themselves.	protection, sleep
31.	Do all fish swim horizontally?	no, a few, like the seahorse, swim vertically.
32.	Why do fish feel slimy?	they secrete mucus to protect against parasites and diseases.
33.	What is the longest living fish?	some Sturgeon have lived for over 50 years.
34.	True or False: Fish that swim in the ocean taste salty when eaten.	FALSE
35.	What do fish eat?	plankton, other fish, plants, etc.
36.	Is a dolphin a fish?	no, it is an aquatic mammal.

SR-1449

OTHER CLEVER CATCH® TITLES AVAILABLE:

Clever Catch®
Insects

SR-1401 ABCs
SR-1402 Multiplication
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SR-1404 Pre-Algebra
SR-1405 US States and Capitols
SR-1406 Time
SR-1407 Money
SR-1410 Addition
SR-1411 Subtraction
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SR-1419 Numbers 0-25
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Your **Insects Clever Catch®** provides an excellent way for children to learn about the characteristics of insects. There are 39 facts included. Clever Catch® can be used at school in organized classroom activities and in small or large groups. It can also be used on the playground or at home. Grades K-3.

CLEVER CATCH® AT HOME OR ON THE PLAYGROUND

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	Question	Answer
1.	How many legs do insects have?	six
2.	What are the three body parts of an insect?	head, thorax, abdomen
3.	Is a bumblebee an insect?	yes
4.	Is a spider an insect?	no
5.	What do we call the process in which eggs or larvae turn into adult insects?	metamorphosis
6.	If an insect sheds its exoskeleton, but doesn't change into a different form, we call it a_____.	nymph
7.	What are the four stages of complete metamorphosis?	egg, larva, pupa, adult
8.	What are the three stages of incomplete metamorphosis?	egg, nymph, adult
9.	The hard, outer part of an insect's body is called its_____.	exoskeleton
10.	Insects have two_____ on their heads that help them smell.	antennae
11.	Some insects have_____ to help them fly.	wings
12.	Spiracles are openings in the insect's body that help it_____.	breathe air
13.	To which body part are an insect's legs connected?	thorax
14.	Which is the largest group of insects?	beetles
15.	Is a grasshopper an insect?	yes
16.	What is your favorite kind of insect?	open answer
17.	Is a tadpole an insect?	no
18.	Some butterflies_____ to a warmer climate in winter.	migrate
19.	What 3 things do all insects need to live?	1. air 2. a place to live 3. food and water
20.	The environment that an insect lives in is called its_____.	habitat
21.	Name an insect that is green.	grasshopper, praying mantis, etc.
22.	Name an insect that is yellow and black.	bumble bee, wasp, etc.
23.	Name an insect that makes noise.	cricket, bee, etc.
24.	What are some good things that insects do for us?	pollinate flowers, eat other insects
25.	Why are some insects different colors?	open answer
26.	What would the world look like if you were the size of an insect?	open answer
27.	How long do insects live?	some live for many years, some live for only a few hours
28.	What are some habitats for insects?	water, trees, grass, soil, etc.
29.	Insects that live together in large groups live in a_____.	colony, hive
30.	True or False: Ants can pull 52 times their own weight.	true
31.	Name an insect that is a pest.	cockroach, carpenter ant, termite, etc.
32.	Is a worm an insect?	no
33.	True or False: All insects have wings.	FALSE
34.	Do some insects eat other insects?	yes
35.	Name a poisonous insect.	scorpion, bee, mosquito, etc.
36.	Caterpillars wrap themselves in a_____ where they change into butterflies.	chrysalis or cocoon
37.	Fly larvae are called_____.	maggots
38.	Name an insect with a stinger.	scorpion, bee, wasp, yellow jacket, etc.
39.	Which insect makes a food that we like to eat?	bees, they make honey

SR-1447

OTHER CLEVER CATCH® TITLES AVAILABLE:

Clever Catch®
Mammals

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SR-1402	Multiplication
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Your **Mammals Clever Catch®** provides an excellent way for children to learn about the characteristics of mammals. There are 39 facts included. Clever Catch® can be used at school in organized classroom activities and in small or large groups. It can also be used on the playground or at home. Grades K-3

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	Question	Answer
1.	Mammals are the only animals with____or_____to help keep them warm.	hair or fur
2.	What are two mammals that look like fish and act like fish, but are not fish?	whales and dolphins
3.	Most mammals have four legs and a tail. Name a mammal that has two legs and no tail?	humans, chimpanzee, gorillas, etc.
4.	Which mammals have no legs?	whales, dolphins, walrus, seal, etc.
5.	What is the term for having coloring that helps mammals blend in with their environment?	camouflage
6.	Which mammal has hairs that are hollow so that the air that is trapped in them holds in body heat?	polar bears
7.	All female mammals have mammary glands, which make_____for their babies.	milk
8.	Do mammal mothers take care of their young more or less time than other animals?	more
9.	A mammal's body temperature stays the same, which is known as being_____ - _____.	warm-blooded
10.	Most mammals do not lay eggs like birds. They give _____to their babies	birth
11.	Name one mammal that lays eggs	platypus
12.	One group of mammals called marsupials has a special pouch to keep their babies in until they completely develop. An example is a _____.	kangaroo, wallaby, opossum, koala, wombat
13.	A baby cat is called a_____.	kitten
14.	A baby dog is called a_____.	puppy
15.	A baby kangaroo is called a_____.	joey
16.	A baby bear is called a_____.	cub
17.	A baby horse is called a_____.	foal
18.	A baby cow is called a_____.	calf
19.	What is the only mammal that can fly?	bat
20.	Mammal bodies are_____for the type of life they lead.	adapted
21.	Can mammals live on land?	yes
22.	Do some mammals life in the water?	yes
23.	Are there mammals that live underground?	yes
24.	What do mammals have that helps them breathe air?	lungs
25.	Do mammals have backbones?	yes, they are vertebrates
26.	Some mammals with just a little hair or fur, such as whales, have a layer of fat called_____to help keep them warm.	blubber
27.	Is an elephant a mammal?	yes
28.	Rodents are mammals that have sharp front_____ to chew through hard foods, like nuts or tree bark.	teeth
29.	Is a porcupine a mammal?	yes
30.	Lions live together in a family group called a_____	pride
31.	Are armadillos mammals?	yes
32.	Is a parrot a mammal?	no
33.	Some mammals have_____ on their feet, instead of claws or fingers.	hooves or flippers
34.	Are crocodiles mammals?	no
35.	Do mammals have larger or smaller brains than other animals?	larger
36.	Is a shark a mammal?	no, it's a fish
37.	Is an octopus a mammal?	no
38.	What is a baby goat called?	kid
39.	What is a group of whales called?	pod

SR-1563

OTHER CLEVER CATCH® TITLES AVAILABLE:

Clever Catch®
Reptiles

SR-1401	ABCs
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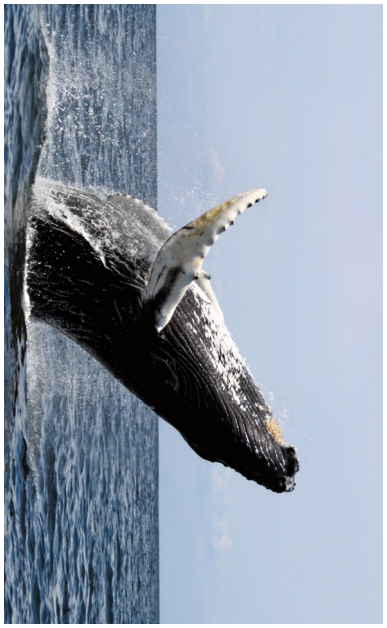
	Question	Answer
1.	True or False: All snakes are meat eaters.	TRUE
2.	What do crocodiles and alligators eat?	birds, fish, reptiles, and other animals
3.	True or False: Some snakes eat only once a year.	TRUE
4.	Where does a female turtle lay her eggs?	in the ground
5.	True or False: Turtles have very sharp teeth.	FALSE - no teeth
6.	How do turtles eat their food?	tear it apart with their beaks
7.	Reptiles breathe with _____.	lungs
8.	What does a reptile's skin feel like?	soft and dry
9.	What will you find on a reptile's skin?	scales
10.	In what habitats can reptiles live?	deserts, woodlands , oceans, and rivers
11.	Reptiles _____in very cold weather.	hibernate
12.	Are reptiles warm-blooded or cold-blooded?	cold
13.	What happens to a reptile's skin as it grows?	it is shed
14.	Tortoises are turtles that live on _____.	land
15.	True or False: Reptiles do not need to eat as often as warm-blooded animals.	TRUE
16.	True or False: Newborn reptiles look like young adult reptiles when they are born.	TRUE
17.	Turtles have lived on land as long as what prehistoric creatures?	dinosaurs
18.	What do snakes use their tongues for?	to smell
19.	Reptiles are vertebrates. A vertebrate is an animal with a _____.	backbone
20.	Turtles are the only reptile with _____.	a shell
21.	Sea turtles do not have feet. They have _____.	flippers
22.	True or False: Sea turtles can withdraw into their shells.	FALSE
23.	Many turtles are facing extinction. What is their worst enemy?	humans
24.	What reptile has no legs?	snakes
25.	Lizards are reptiles with _____ legs.	four
26.	True or False: Turtles are found in very few environments.	FALSE - they live in many environments around the world
27.	True or False: Some snakes live in trees.	TRUE
28.	Most turtles are omnivores. They eat both _____ and _____.	plants and animals
29.	What do most reptiles have on their feet?	claws
30.	Although many reptiles lay eggs, some give birth to _____ young.	live
31.	Alligators use their _____ to walk and their _____ to swim.	legs, tails
32.	What do chameleons do to avoid predators?	change color
33.	Sea turtles come to land to do what?	lay eggs
34.	How many eggs can a female alligator lay?	30-80
35.	How do crocodiles kill their prey?	drown them
36.	What can happen if a predator grabs a lizard's tail?	It can come off and with some lizards, a new one grows in its place.



Humpback whale

Class: *Mammalia*

Legs: No

Wings: No

Fins/flippers: 4

Habitat: Water

Diet: Carnivore

Endangered: No

Pig (domestic)

Class: *Mammalia*

Legs: 4

Wings: No

Fins/flippers: No

Habitat: Land

Diet: Omnivore

Endangered: No

Sheep (domestic)

Class: *Mammalia*

Legs: 4

Wings: No

Fins/flippers: No

Habitat: Land

Diet: Herbivore

Endangered: No

Horse

Class: *Mammalia*

Legs: 4

Wings: No

Fins/flippers: No

Habitat: Land

Diet: Herbivore

Endangered: No

Seahorse

Class: *Actinopterygii*

Legs: No

Wings: No

Fins/flippers: Yes

Habitat: Water

Diet: Carnivore

Endangered: Some species

Bottlenose dolphin

Class: *Mammalia*

Legs: No

Wings: No

Fins/flippers: Yes

Habitat: Water

Diet: Carnivore

Endangered: No

Fly

Order: *Insecta*

Legs: 6

Wings: 2

Fins/flippers: No

Habitat: Air and land

Diet: Varied

Endangered: No

Hercules Beetle

Class: *Insecta*

Legs: 6

Wings: 4

Fins/flippers: No

Habitat: Air and land

Diet: Detritivore

Endangered: No

Wasp

Class: *Insecta*

Legs: 6

Wings: 2 or 4

Fins/flippers: No

Habitat: Air and land

Diet: Varied

Endangered: No

Kangaroo

Class: *Mammalia*

Legs: 4

Wings: No

Fins/flippers: No

Habitat: Land

Diet: Herbivore

Endangered: No

Green Sea Turtle

Class: *Reptilia*

Legs: No

Wings: No

Fins/flippers: 4

Habitat: Water

Diet: Herbivore

Endangered: Yes

Aldabra Giant Tortoise

Class: *Reptilia*

Legs: 4

Wings: No

Fins/flippers: No

Habitat: Land

Diet: Herbivore

Endangered: No

Scarlet Macaw

Class: *Aves*

Legs: 2

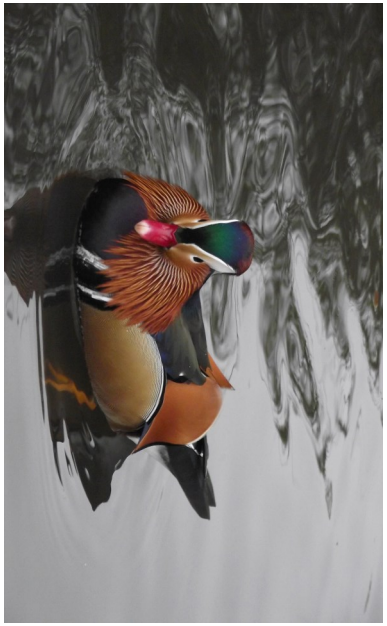
Wings: 2

Fins/flippers: No

Habitat: Air and land

Diet: Herbivore

Endangered: No



Mandarin Duck

Class: *Aves*

Legs: 2

Wings: 2

Fins/flippers: No

Habitat: Water and land

Diet: Omnivore

Endangered: No

Monarch Butterfly

Class: *Insecta*

Legs: 6

Wings: 4

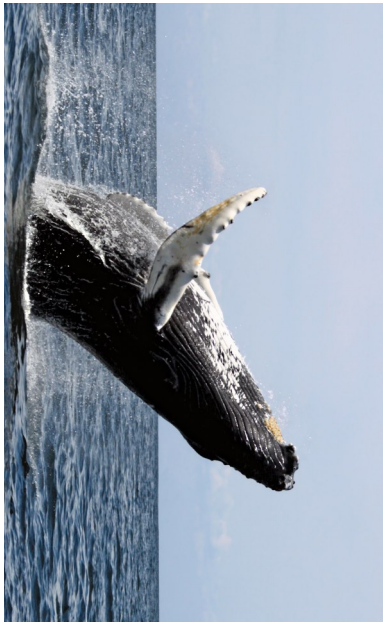
Fins/flippers: No

Habitat: Air and land

Diet: Herbivore

Endangered: No

Linnaeus Says - Difficult



Humpback whale

Genus: *Megaptera*
Species: *M. novaeangliae*

Length: 13 -17 metres

Weight: 36,000 kilograms

Lives: Oceans worldwide

Eats: Krill and small fish

Migrates: 25,000 kilometres

Population: 80,000 worldwide

Lifespan: 45-100 years

Pig (domestic)

Genus: *Sus*
Species: *S. Scrofa domesticus*

Length: 0.9-1.8 metres

Weight: 50-350 kilograms

Lives: Worldwide

Eats: Grass, fruit, roots

Migrates: No

Population: 1,000,000,000

Lifespan: 5-15 years

Sheep (domestic)

Genus: *Ovis*
Species: *O. aries*

Length: 1.2-1.8 metres

Weight: 45-160 kilograms

Lives: Worldwide

Eats: Grass

Migrates: No

Population: 1,000,000,000

Lifespan: 10-12 years

Horse

Genus: *Equus*
Species: *E. ferus caballus*

Height: 120-180 centimetres

Weight: 380 -1,000 kilograms

Lives: Worldwide

Eats: Grass and hay

Migrates: No

Population: 59,000,000

Lifespan: 25-30 years

Seahorse

Genus: *Hippocampus*

Species: 54 known

Length: 1.5-35.5 centimetres

Weight: up to 8 grams

Lives: Shallow seas worldwide

Eats: Crustaceans

Migrates: No

Population: Unknown

Lifespan: 1-5 years

Linnaeus Says - Difficult

Bottlenose dolphin

Genus: *Tursiops*

Species: 3 known

Length: 2-4 metres

Weight: 150-650 kilograms

Lives: Oceans worldwide

Eats: Fish and crustaceans

Migrates: Sometimes

Population: Unknown

Lifespan: 20-40 years

Fly

Order: *Diptera*

Species: 240,000 estimated

Length: 2-10 millimetres

Weight: 5-20 milligrams

Lives: Worldwide

Eats: Wide variety

Migrates: Occasionally

Population: Unknown

Lifespan: Varies widely

Hercules Beetle

Genus: *Dynastes*
Species: *D. hercules*

Length: 8-17cm

Weight: up to 85 grams

Lives: Central & South America

Eats: Rotting wood, insects

Migrates: No

Population: Unknown

Lifespan: 2-3 years

Wasp

Order: *Hymenoptera*

Species: over 100,000

Length: 10-25 millimetres

Weight: 40-100 milligrams

Lives: Worldwide

Eats: Insects, fruit, carrion

Migrates: No

Population: Varies by year

Lifespan: 1 year

Kangaroo

Genus: *Macropus*

Species: 4

Height: up to 2 metres

Weight: 59 - 90 kilograms

Lives: Australia

Eats: Grass and shrubs

Migrates: No

Population: 34,000,000

Lifespan: 6 years (wild)

Green Sea Turtle

Genus: *Chelonia*
Species*: C. mydas*

Species: around 300

Length: up to 150 centimetres

Weight: up to 300 kilograms

Lives: Tropical water worldwide

Eats: Seagrass

Migrates: Yes

Population: Unknown

Lifespan: up to 80 years

Aldabra Giant Tortoise

Genus: *Aldabrachelys*
Species: *A. gigantea*

Length: up to 120 centimetres

Weight: 150-250 kilograms

Lives: Seychelles

Eats: Grass plants

Migrates: No

Population: 100,000

Lifespan: up to 200 years

Scarlet Macaw

Genus: *Ara*
Species: *A. macao*

Length: 80-95 centimetres

Weight: 1 kilogram

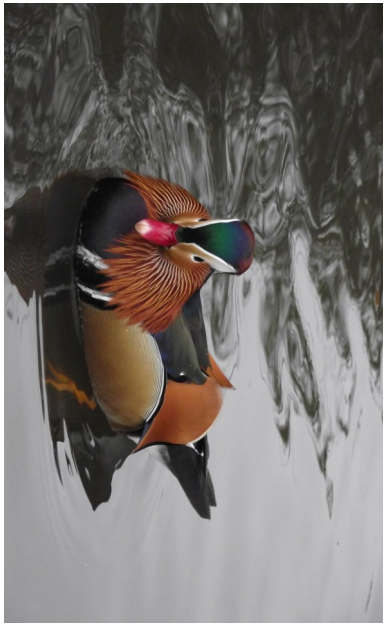
Lives: South America

Eats: Fruit, nuts and seeds

Migrates: Yes

Population: less than 50,000

Lifespan: 30-50 years



Mandarin Duck

Genus: *Aix*
Species: *A. galericulata*

Length: 40-50 centimetres

Weight: 500-650 grams

Lives: Worldwide, mainly Asia

Eats: Plants, seeds and insects

Migrates: Yes

Population: Unknown

Lifespan: up to 20 years

Monarch Butterfly

Genus: *Danaus*
Species: *D. plexippus*

Length: 9-10 centimetres

Weight:

Lives: Mainly North America

Eats: Nectar

Migrates: Yes

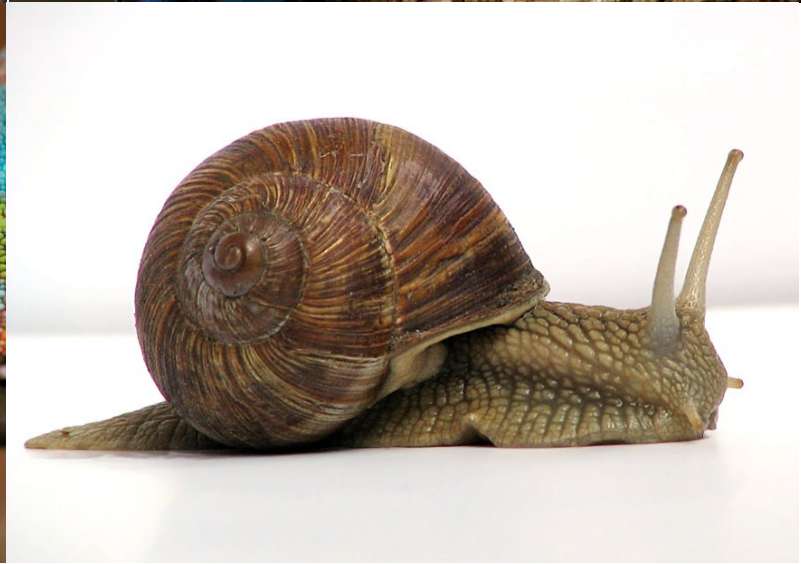
Population: Unknown

Lifespan: 2-7 months



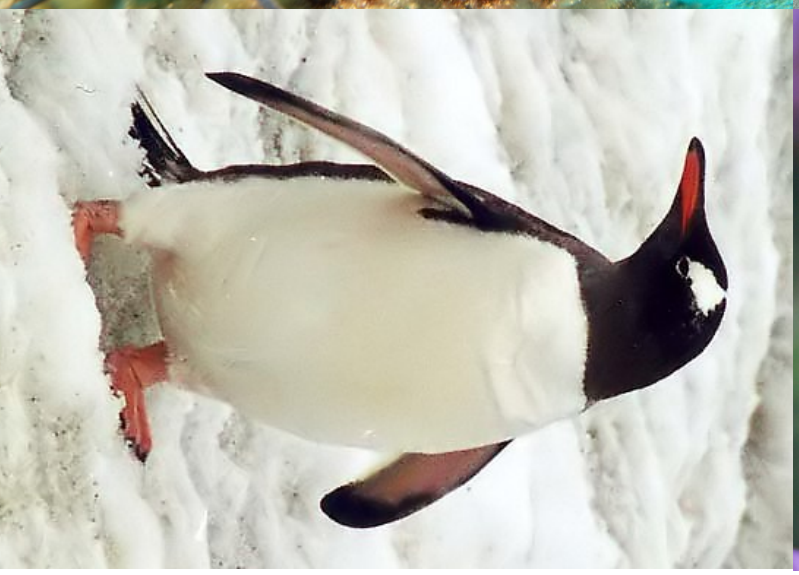











Find that specimen cards

I live in the grass

I have very strong legs so I can jump very high

I rub my front legs together to make a song

I eat fruit, nectar and other insects

I build my own paper nests from chewing wood and other materials

I can sting if I feel threatened

I have a hairy body to keep me warm

If I'm not flying around your house, I like to live in a dark place

I often fly towards bright lights

I use my feet to taste—yummy!

I don't have a mouth, but I drink with a long 'tongue'

I have beautiful wings

I have a shell to protect my wings

I can fly very fast

I feed on flowers, nectar and pollen

My shell is a metallic colour

I have lots and lots of legs!

I like to live in the soil, under leaves or inside logs

I prefer damp places

I eat other insects and spiders

I have a long narrow body

I'm one of the fastest flying insects in the world

I eat mosquitoes and other small insects

I'm usually found near water

I have one large claw and one small claw

I live on beaches, mud flats and in swamps

I shed my shell to grow bigger

I have a narrow tail that I carry curved over my back

At the end of my tail is a stinger

I glow under ultraviolet light

I have eight legs

I can be found all over the world, in many different habitats

I make silk threads that I use to build my home