FREE KS2 SCIENCE YEAR FOUR WORKOUT: SOUND PDF

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Year 4: Sound | STEM

These Changing Sound KS2 Science lessons for Year 4 children are fully planned and make teaching your KS2 Science Year Four Workout: Sound everything they need to know about sound easy and fun!

The lessons explore what sound is and how it is made, before giving your class the chance to investigate how sound travels, how it can be blocked, how different pitches can be attained, and much more! This Changing Sound Year 4 planning pack contains seven ready-to-teach lessons that have all the resources you need to deliver outstanding Science lessons. Each lesson has a lesson plan, a slideshow for the whole-class input, differentiated activity ideas plus an alternative activity, and a range of printable resources, including worksheets.

The first lesson in this series introduces children to the idea of sound being caused by vibrations and gives them the opportunity to explore visual ways of representing this in a practical, hands-on way.

The included lesson plan suggests two ways in which you could undertake learning activities with your class, depending on the resources you have available. This lesson encourages children to think about the different materials sound travels through before it reaches their ears and to think about what this tells them about the different materials sound can travel through. They will also have the opportunity to carry out an experiment to KS2 Science Year Four Workout: Sound which materials sound travels easily through and which muffle sound.

This lesson gives KS2 Science Year Four Workout: Sound class the opportunity to devise and carry out their own tests to see if they can find what happens to sound as you increase the distance between the sound and the person hearing the sound. This lesson gives your class the chance to consider why it is sometimes necessary to prevent sound from travelling to the ears and to find out how this can be achieved through their own soundproofing activities and investigations.

This fun lesson will get your class thinking about pitch and how notes of high and low pitch are created on different instruments. Following this, give children the opportunity to test their musical ears and explore pitch in a variety of ways during either of the two included activities. This lesson allows your KS2 Science Year Four Workout: Sound to investigate what happens to the pitch of notes on stringed instruments when the thickness, tightness and length of strings are altered.

You can work with real instruments, or undertake the alternative activity, where children can make their own guitars! The final lesson in this series explores how air can vibrate to produce sounds and how the length of the air column in wind instruments changes the pitch of that sound. During either of the two included activities, there are opportunities for children to investigate how sounds are produced in this way, and how they can be changed.

Download a free overview to support your teaching of this scheme of work. Download a free, editable assessment grid to support your teaching of this scheme of work. Changing Sound. TheCompleteSeries7lessons This Changing Sound Year 4 planning pack contains seven ready-to-teach lessons that have all the resources you need to deliver outstanding Science lessons.

Lesson1WhatisSound The first lesson in this KS2 Science Year Four Workout: Sound introduces children to the idea of sound being caused by vibrations and gives them the opportunity to explore visual ways of representing this in a practical, hands-on way.

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How do we hear sound? - Homeschool lessons in KS2 Science for Year 4 - BBC Bitesize

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A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena.

They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

The programmes of study describe a sequence of knowledge and concepts. While it is important that KS2 Science Year Four Workout: Sound make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. It should not be taught as a separate strand.

These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing controlled investigations ; and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.

The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating KS2 Science Year Four Workout: Sound concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

The programmes of study for science are set out year-by-year for key stages 1 and 2. Schools are, however, KS2 Science Year Four Workout: Sound required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study.

In KS2 Science Year Four Workout: Sound, schools can introduce key stage content during an earlier key stage if appropriate. All schools are also required to set out their school curriculum for science on a year-by-year basis and make this information available online. By KS2 Science Year Four Workout: Sound end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them.

They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information.

They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read KS2 Science Year Four Workout: Sound spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1. During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:.

Pupils in years 1 and 2 should explore the world around them and raise their own questions. They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. They should use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, and, with guidance, they should begin to notice patterns and relationships.

They should ask people questions and use simple secondary sources to find answers. They should use simple measurements and equipment for example, hand lenses, egg timers to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language.

These opportunities for working scientifically should be provided across years 1 and 2 so that the expectations in the programme of study can be met by the end of year 2. Pupils are not expected to cover each aspect for every area of study. Pupils should use the local environment throughout the year to explore and answer questions about plants growing in their habitat.

Where possible, they should observe the growth of flowers and vegetables that they have planted. They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures including leaves, flowers blossompetals, fruit, roots, bulb, seed, trunk, branches, stem. Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees.

Pupils might keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants. Pupils should use the local environment throughout the year to explore and answer questions about animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to return them safely after study.

Pupils should become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets.

Pupils should have plenty of opportunities KS2 Science Year Four Workout: Sound learn the names of the main body parts including head, neck, arms, elbows, KS2 Science Year Four Workout: Sound, knees, face, KS2 Science Year Four Workout: Sound, eyes, hair, mouth, teeth through games, actions, songs and rhymes.

Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify KS2 Science Year Four Workout: Sound group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells. Pupils should explore and experiment with a wide variety of materials, not only those listed in the programme of study, but including for example: brick, paper, fabrics, elastic, foil.

Note: pupils should be warned that it is not safe to look directly at the sun, even when wearing dark glasses. Pupils might work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change. Pupils should be introduced to the idea that all living KS2 Science Year Four Workout: Sound have certain characteristics that are essential for keeping them alive and healthy.

They should raise and answer questions that help them to become familiar with the life processes that are common to all living things. They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and

observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals.

KS2 Science Year Four Workout: Sound should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, KS2 Science Year Four Workout: Sound the rainforest.

Pupils might work scientifically by: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts.

Is a deciduous tree dead in winter? They could construct a simple food chain that includes humans eg, grass, cow, human. They could describe the conditions in different habitats and microhabitats under log, KS2 Science Year Four Workout: Sound stony path, under bushes ; and find out how the conditions affect the number and type s of plants and animals that live there.

Pupils should use the local environment throughout the year to observe how plants grow. Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants. Note: seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them.

Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy. Pupils should be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans.

They should also be introduced to the processes of reproduction and growth in animals. The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs. The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult.

Pupils might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.

Pupils should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles or different materials are used for the same thing spoons can be made from plastic, wood, metal, but not normally from glass.

They should think about the properties of materials that make them KS2 Science Year Four Workout: Sound or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials.

Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places at home, the journey to school, on visits, and in stories, rhymes and songs ; observing closely, identifying and classifying the uses of different materials, and recording their observations.

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions.

They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:.

Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their KS2 Science Year Four Workout: Sound questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to KS2 Science Year Four Workout: Sound how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys.

They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.

They should learn how KS2 Science Year Four Workout: Sound use new equipment, such as data loggers, appropriately. They KS2 Science Year Four Workout: Sound collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.

With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected, and finding ways of improving what they have already done. They should also recognise when and how secondary sources might

help them to answer questions that cannot be answered through practical investigations.

Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences. These opportunities for working scientifically should be provided across years 3 and 4 so that the expectations in the programme of study can be met by the end of year 4.

Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. Note: pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens.

Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.

Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions. Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons.

KS2 Science Year 4 Workout Bundle | CGP Books

This list consists of lesson plans, activities and video clips to support the teaching of sound at Year Four. It contains tips on using the resources, suggestions for further use and background subject knowledge.

Possible misconceptions are highlighted so that teachers may plan lessons to facilitate correct conceptual understanding. Designed to support the new curriculum programme of study it aims to cover many of the requirements for knowledge and understanding and working scientifically. The statutory requirements are that children are taught to:.

Visit the primary science webpage to access all lists. Category: Science. Finding out what children already know establishes a basis for their continued learning.

Session A aims to do this through a carousel of activities in which sound is produced. Identify how musical instruments make sounds, look at how the shape of an KS2 Science Year Four Workout: Sound affects how we hear sounds and describe different sounds.

Session B looks at how sounds are produced when objects vibrate but that vibrations are not always directly visible. Showing example where vibrations cannot be seen e. The activities in this session allow children to explore this.

Carrying out a class survey on sounds is a great way of working scientifically to find out about the world. Try out the ideas on page 4. Another idea is to play some different sounds and talk about children's favourite sounds. Choose six then ask the class to vote on them and to create a living bar chart with children as the bars, showing which is the most popular. This could be repeated for the least favourite sound. This is a good way of representing data without having to write it down.

Linking to music - children could listen to various instruments and decide which ones they prefer. Discuss higher and lower pitch sounds and ask children in groups to explore the instruments and order them from low to high. Category: Physics. Slides 16,17,18 and 19 look at the various animals and the pitch of the sounds they produce, larger animals making lower pitched sounds and smaller ones higher pitched sounds. It then goes on to look at the size of various instruments. Children could look at a range of drums and predict the pitch of the sound they will produce.

This could be repeated with other musical instruments. A great way of showing this is by having a child blow through a straw and snipping it as they blow and hearing the change in pitch as the straw becomes shorter.

An activity detailing this is described in KS2 Science Year Four Workout: Sound straw oboes activity below. This resource provides a set of videos and KS2 Science Year Four Workout: Sound practical investigation aimed at supporting working scientifically in the classroom and relating science to real world experiences. In the first video Professor Brian Cox joins a teacher to find out how to set up and run an investigation to find out what affects KS2 Science Year Four Workout: Sound pitch and volume of a sound.

Children build instruments out of every day equipment, including elastic bands and pots, twanging rulers and beans in pots.

They change the length and width of elastic bands and the length of the ruler to see what KS2 Science Year Four Workout: Sound that makes to the sounds. Further videos show Brian Cox meeting a composer to find out how sound can be used to convey different emotions in films and a scientist using sound waves to levitate small objects. An alternative to cutting the straw as you blow could be to challenge children to create an instrument on which the pitch may be changed.

Children KS2 Science Year Four Workout: Sound explore ways of making other instruments on which pitch could be changed such as bottles with various water levels. Children could then look at the average value of their results, perhaps focussing on the median value at this age. The second investigation looks at the materials which muffle sound the best. This provides an ideal opportunity for children to carry out a fair test.

Category: Biology. Watch a short film about a child with Treacher Collins syndrome who has hearing difficulties and ask children to consider how the boy would feel in their school. Then ask children to come up with a set of survey questions to assess the noisiest places in school. Children

work in small groups to survey the school and map their findings. This is a great opportunity to consider how we are all different and develop an awareness of the needs of others. Remember that this topic may affect certain children in the class personally so should be adapted to suit individual class needs.

Animations, clips and guidance on all things relating to sound at Year 4. Category: Cross curricular. Activities investigate: how vibrations travel through different materials, making instrument on which the notes may be changed, creating animal noises using voices and instruments, muffling sound, amplifying sound, investigating rhythm and making a speaker.

Category: Computing. This cross curricular activity includes science content from Year Four of the primary curriculum. It introduces programming and control, linked to the outside world through sensors - in this case, the computer's built-in microphone or a peripheral microphone. Programs are written using Scratch online or offline after a short design activity. Links to physical computing devices, such as Lego WeDo, are highlighted.

Category: Design and technology. In this design and technology project children design and make their own simple stringed instrument, so they can make a soundtrack for a movie clip. This enables them to learn and experience properties of sound and discover more about the work of sound engineers throughout the process. It provides a great way of allowing children to be creative and apply their scientific knowledge in a practical context.

This booklet is a great guide for KS2 Science Year Four Workout: Sound all spects of sound at upper primary. It also includes samples of children's work to help with assessment and progression of ideas. Sign in Register Search. Year 4: Sound This list consists of lesson plans, activities and video clips to support the teaching of sound at Year Four. Sound: listen up Category: Science Finding out what children already know establishes a basis for their continued learning. Assembly on Sound Category: Science Carrying out a class survey on sounds is a great way of working scientifically to find out about the world.

Sound Category: Physics Slides 16,17,18 and 19 look at the various animals and the pitch of the sounds they produce, larger animals making lower pitched sounds and smaller ones higher pitched sounds. What factors affect the pitch and the volume of sound? Category: Science This resource provides a set of videos and a practical investigation aimed at supporting working scientifically in the classroom and relating science to real world experiences.

Sound Survey Category: Biology Watch a short film about a child with Treacher Collins syndrome who has hearing difficulties and ask children to consider how the boy would feel in their school.

External link. Classroom Sound Monitor Category: Computing This cross curricular activity KS2 Science Year Four Workout: Sound science content from Year Four of the primary curriculum. Report inappropriate content. Add to favorites list. Email Twitter Facebook. Get in touch. Call us at: Email us.