SOUND (MAKE IT WORK! SCIENCE (PAPERBACK WORLD)) pdf

1: Make It Work Ser. Science: Body by Andrew Haslam and Liz Wyse (, Paperback) | eBay

Sound is a unique blend of imaginative activities, experiments and science facts that helps develop scientific thought. The vast Make it Work series teaches scientific principles through the hands-on process of making science work.

In the following scenes she appears to pinch, swipe and prod the pages of paper magazines as though they too were screens. When nothing happens, she pushes against her leg, confirming that her finger works just fineâ€”or so a title card would have us believe. Perhaps his daughter really did expect the paper magazines to respond the same way an iPad would. Or maybe she had no expectations at allâ€”maybe she just wanted to touch the magazines. Young children who have never seen a tablet like the iPad or an e-reader like the Kindle will still reach out and run their fingers across the pages of a paper book; they will jab at an illustration they like; heck, they will even taste the corner of a book. Nevertheless, the video brings into focus an important question: How exactly does the technology we use to read change the way we read? How reading on screens differs from reading on paper is relevant not just to the youngest among us , but to just about everyone who readsâ€”to anyone who routinely switches between working long hours in front of a computer at the office and leisurely reading paper magazines and books at home; to people who have embraced e-readers for their convenience and portability, but admit that for some reason they still prefer reading on paper; and to those who have already vowed to forgo tree pulp entirely. As digital texts and technologies become more prevalent, we gain new and more mobile ways of readingâ€”but are we still reading as attentively and thoroughly? How do our brains respond differently to onscreen text than to words on paper? Should we be worried about dividing our attention between pixels and ink or is the validity of such concerns paper-thin? Since at least the s researchers in many different fieldsâ€”including psychology, computer engineering, and library and information scienceâ€”have investigated such questions in more than one hundred published studies. The matter is by no means settled. Before most studies concluded that people read slower, less accurately and less comprehensively on screens than on paper. Studies published since the early s , however, have produced more inconsistent results: And recent surveys suggest that although most people still prefer paperâ€”especially when reading intensivelyâ€—attitudes are changing as tablets and e-reading technology improve and reading digital books for facts and fun becomes more common. Even so, evidence from laboratory experiments , polls and consumer reports indicates that modern screens and e-readers fail to adequately recreate certain tactile experiences of reading on paper that many people miss and, more importantly, prevent people from navigating long texts in an intuitive and satisfying way. In turn, such navigational difficulties may subtly inhibit reading comprehension. Compared with paper, screens may also drain more of our mental resources while we are reading and make it a little harder to remember what we read when we are done. Whether they realize it or not, many people approach computers and tablets with a state of mind less conducive to learning than the one they bring to paper. I would like to preserve the absolute best of older forms, but know when to use the new. We often think of reading as a cerebral activity concerned with the abstractâ€”with thoughts and ideas, tone and themes, metaphors and motifs. As far as our brains are concerned, however, text is a tangible part of the physical world we inhabit. In fact, the brain essentially regards letters as physical objects because it does not really have another way of understanding them. As Wolf explains in her book Proust and the Squid, we are not born with brain circuits dedicated to reading. After all, we did not invent writing until relatively recently in our evolutionary history, around the fourth millennium B. So the human brain improvises a brand-new circuit for reading by weaving together various regions of neural tissue devoted to other abilities, such as spoken language, motor coordination and vision. Some of these repurposed brain regions are specialized for object recognition â€”they are networks of neurons that help us instantly distinguish an apple from an orange, for example, yet classify both as fruit. Just as we learn that certain featuresâ€”roundness, a twiggy stem, smooth skinâ€—characterize an apple, we learn to recognize each letter by its particular arrangement of lines, curves and hollow spaces. Some researchers see traces of these origins in modern alphabets: C as crescent moon, S as snake. Especially intricate charactersâ€—such as Chinese hanzi and Japanese kanji â€—activate motor regions in the brain involved in forming those characters on paper: The brain literally goes through the motions of writing when reading, even if the hands are empty. Researchers recently discovered that the same thing happens in a milder way when some people read cursive. Beyond treating individual letters as physical objects, the human brain may also perceive a text in its entirety as a kind of physical landscape. When we read, we construct a mental representation of the text in which meaning is anchored to structure. The exact nature of such representations remains unclear, but they are likely similar to the mental maps we create of terrainâ€”such as mountains and trailsâ€”and of man-made physical spaces, such as apartments and offices. Both anecdotally and in published studies , people report that when trying to locate a particular piece of written information they often remember where in the text it appeared. We might recall that we passed the red farmhouse near the start of the trail before we started climbing uphill through the forest; in a similar way, we remember that we read about Mr. Darcy rebuffing Elizabeth Bennett on the bottom of the left-hand page in one of the earlier chapters. In most cases, paper books have more obvious topography than onscreen text. An open paperback presents a reader with two clearly defined domainsâ€”the left and right pagesâ€”and a total of eight corners with which to orient oneself. A reader can focus on a single page of a paper book without losing sight of the whole text: One can even feel the thickness of the pages read in one hand and pages to be read in the other. All these features not only make text in a paper book easily navigable, they also make it easier to form a coherent mental map of the text. In contrast, most screens, e-readers, smartphones and tablets interfere with intuitive navigation of a text and inhibit people from mapping the journey in their minds. A reader of digital text might scroll through a seamless stream of words, tap forward one page at a time or use the search function to immediately locate a particular phraseâ€”but it is difficult to see any one passage in the context of the entire text. As an analogy, imagine if Google Maps allowed people to navigate street by individual street, as well as to teleport to any specific address, but prevented them from zooming out to see a neighborhood, state or country. Although e-readers like the Kindle and tablets like the iPad re-create paginationâ€”sometimes complete with page numbers, headers and illustrationsâ€—the screen only displays a single virtual page: Instead of hiking the trail yourself, the trees, rocks and moss move past you in flashes with no trace of what came before and no way to see what lies ahead. In a study published in January Anne Mangen of the University of Stavanger in Norway and her colleagues asked 72 10th-grade students of similar reading ability to study one narrative and one expository text, each about 1, words in length. Half the students read the texts on paper and half read them in pdf files on computers with inch liquid-crystal display LCD monitors. Afterward, students completed reading-comprehension tests consisting of multiple-choice and short-answer questions, during which they had access to the texts. Students who read the texts on computers performed a little worse than students who read on paper. Based on observations during the study, Mangen thinks that students reading pdf files had a more difficult time finding particular information when referencing the texts. Volunteers on computers could only scroll or click through the pdfs one section at a time, whereas students reading on paper could hold the text in its entirety in their hands and quickly switch between different pages. Because of their easy navigability, paper books and documents may be better suited to absorption in a text. Supporting this research, surveys indicate that screens and e-readers interfere with two other important aspects of navigating texts: People report that they enjoy flipping to a previous section of a paper book when a sentence surfaces a memory of something they read earlier, for example, or quickly scanning ahead on a whim. People also like to have as much control over a text as possibleâ€”to highlight with chemical ink, easily write notes to themselves in the margins as well as deform the paper however they choose. Because of these preferencesâ€”and because getting away from multipurpose screens improves concentrationâ€—people consistently say that when they really want to dive into a text, they read it on paper. In a survey of graduate students at National Taiwan University, the majority reported browsing a few paragraphs online before printing out the whole text for more in-depth reading. A survey of millennials people born between and the early s at Salve Regina University in Rhode Island concluded that, "when it comes to reading a book, even they prefer good, old-fashioned print". And in a study conducted at the National Autonomous University of Mexico, nearly 80 percent of surveyed students preferred to read text on paper as opposed to on a screen in order to "understand it with clarity". Surveys and consumer reports also suggest that the sensory experiences typically associated with readingâ€”especially tactile experiencesâ€—matter to people more than one might assume. Text on a computer, an e-reader andâ€"somewhat ironicallyâ€"on any touch-screen device is far more intangible than text on paper. So far, digital texts have not satisfyingly replicated this kind of tactility although some companies are innovating, at least with keyboards. Paper books also have an immediately discernible size, shape and weight. We might refer to a hardcover edition of War and Peace as a hefty tome or a paperback Heart of Darkness as a slim volume. In contrast, although a digital text has a lengthâ€"which is sometimes represented with a scroll or progress barâ€"it has no obvious shape or thickness. Some researchers have found that these discrepancies create enough " haptic dissonance " to dissuade some people from using e-readers. People expect books to look, feel and even smell a certain way; when they do not, reading sometimes becomes less enjoyable or even unpleasant. For others, the convenience of a slim portable e-reader outweighs any attachment they might have to the feel of paper books. Exhaustive reading Although many old and recent studies conclude that people understand what they read on paper more thoroughly than what they read on screens, the differences are often small. Some experiments, however, suggest that researchers should look not just at immediate reading comprehension, but also at long-term memory. In a study Kate Garland of the University of Leicester and her colleagues asked 50 British college students to read study material from an introductory economics course either on a computer monitor or in a spiral-bound booklet. After 20 minutes of reading Garland and her colleagues quizzed the students with multiple-choice questions. Students scored equally well regardless of the medium, but differed in how they remembered the information. Psychologists distinguish between remembering somethingâ€"which is to recall a piece of information along with contextual details, such as where, when and how one learned itâ€"and knowing something, which is feeling that something is true without remembering how one learned the information. Generally, remembering is a weaker form of memory that is likely to fade unless it is converted into more stable, long-term memory that is "known" from then on. When taking the quiz, volunteers who had read study material on a monitor relied much more on remembering than on knowing, whereas students who read on paper depended equally on remembering and knowing. Garland and her colleagues think that students who read on paper learned the study material more thoroughly more quickly; they did not have to spend a lot of time searching their minds for information from the text, trying to trigger the right memoryâ€"they often just knew the answers. Other researchers have suggested that people comprehend less when they read on a screen because screen-based reading is more physically and mentally taxing than reading on paper. Depending on the model of the device, glare, pixilation and flickers can also tire the eyes. LCDs are certainly gentler on eyes than their predecessor, cathode-ray tubes CRT , but prolonged reading on glossy self-illuminated screens can cause eyestrain, headaches and blurred vision. Such symptoms are so common among people who read on screensâ€"affecting around 70 percent of people who work long hours in front of computersâ€"that the American Optometric Association officially recognizes computer vision syndrome. In one of his experiments 72 volunteers completed the Higher Education Entrance Examination READ testâ€"a minute, Swedish-language reading-comprehension exam consisting of multiple-choice questions about five texts averaging 1, words each. People who took the test on a computer scored lower and reported higher levels of stress and tiredness than people who completed it on paper. In another set of experiments 82 volunteers completed the READ test on computers, either as a paginated document or as a continuous piece of text. Volunteers had to quickly close a series of pop-up windows, for example, sort virtual cards or remember digits that flashed on a screen. Like many cognitive abilities, working memory is a finite resource that diminishes with exertion. Although people in both groups performed equally well on the READ test, those who had to scroll through the continuous text did not do as well on the attention and working-memory tests. A study conducted at the University of Central Florida reached similar conclusions. Subconsciously, many people may think of reading on a computer or tablet as a less serious affair than reading on paper. Based on a detailed survey of people in northern California, Ziming Liu of San Jose State University concluded that people reading on screens take a lot of shortcutsâ€"they spend more time browsing, scanning and hunting for keywords compared with people reading on paper, and are more likely to read a document once, and only once. When reading on screens, people seem less inclined to engage in what psychologists call metacognitive learning regulationâ€"strategies such as setting specific goals, rereading difficult sections and checking how much one has understood along the way. In a experiment at the Technionâ€”Israel Institute of Technology, college students took multiple-choice exams about expository texts either on computers or on paper. Researchers limited half the volunteers to a meager seven minutes of study time; the other half could review the text for as long as they liked. When under pressure to read quickly, students using computers and paper performed equally well.

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2: Andrew Haslam - Books, Biography, Contact Information

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There are the four fundamental tools used to explore and solve performance problems. This chapter discusses what they are, when to use them, and how these tools interact. The Four Tools of Performance Your business depends on a collection of computers, software, networking equipment, and specialized devices. There are parts of it that you control and can directly meter. Furthermore, there are limits placed on you due to politics, time, budget, legal restrictions, and the tools you have available. Here we will just refer to that subset as the system. As a performance person you study this mysterious system and ask three questions: Let me introduce you to them Performance Monitoring Ignorance is not bliss. It usually includes dealing with immediate performance problems or collecting data that will be used by the other three tools to plan for future peak loads. In performance monitoring you need to know three things: Without these three things you can only solve the most obvious performance problems and have to rely on tools outside the scientific realm such as a Ouija Board, or a Magic 8 Ball to predict the future. You need to know the incoming workload what the users are asking your system to do because all computers run just fine under no load. Performance problems crop up as the load goes up. These performance problems come in two basic flavors: Expected problems are when the users are simply asking the application for more things per second than it can do. You see this during an expected peak in demand like the biggest shopping day of the year. Expected problems are no fun, but they can be foreseen and, depending on the situation, your response might be to endure them, because money is tight or because the fix might introduce too much risk. Unexpected problems are when the incoming workload should be well within the capabilities of the application, but something is wrong and either the end-user performance is bad or some performance meter makes no sense. Unexpected problems cause much unpleasantness and demand rapid diagnosis and repair. The key to all performance work is to know what is normal. Let me illustrate that with a trip to the grocery store. The other day I was buying three potatoes and an onion for a soup I was making. On any given day you, as the performance person, should be able to have a fairly good idea of how much work the users are asking the system to do and what the major performance meters are showing. If you have a good sense of what is normal for your situation, then any abnormality will jump right out at you in the same way you notice subtle changes in a loved one that a stranger would miss. This can save your bacon because if you spot the unexpected utilization before the peak occurs, then you have time to find and fix the problem before the system comes under a peak load. There are some challenges in getting this data. The biggest and most common challenge is in getting the workload data. The Performance Monitoring chapter will show you how to overcome challenges like: Meters fall into big categories. There are utilization meters that tell you how busy a resource is, there are count meters that count interesting events some good, some bad , and there are duration meters that tell you how long something took. As the commemorative plate infomercial says: Start somewhere, collect something and, as you explore and discover, add this to your collection. When should you run the meters? Your meters should be running all the time like bank security cameras so that when weird things happen you have a multitude of clues to look at. You will want to search this data by time What happened at The data you collect can also be used to predict the future with the other three tools in your bag: Capacity Planning, Load Testing, and Modeling. Capacity Planning Capacity planning is the simple science of scaling the observed system so you can see if you have enough resources to handle the projected peak load, but it only works for resources you know about. Capacity planning is like a pre-party checklist where you check if there are enough: Assuming you know how many guests will show up and have a reasonable understanding of what they will consume, everything you checked should be fine. However, even if you miss something, you are still better off having planned for reasonable amounts of the key resources. Capacity planning starts by gathering key performance meters at a peak time on a reasonably busy day. Almost any day will do, as long as the system load is high enough to clearly differentiate it from the idle system load. Then ask the boss: Often you will then find a resource, or two, that will be too busy at your projected peak. In that case, the load has to be handled by: In most situations, people tend to value application stability more than the money they will spend to solve the problem with more hardware. Capacity planning can be that simple, but there are a few more things you need to consider. Even though you base your projections on one peak day, you should look at the data over a period of a few days to a few weeks. This gives you a clear picture where the usual daily peaks are and if there are things going on at odd times that you have to factor into any changes you propose. Many key resources do not have a utilization meter, and the ones that do can lie to you. These resources take a little more work and creativity to capacity plan for, but this is completely doable. Capacity planning is a good first effort at dealing with a future peak load. It can be done in a few days, presented in a few slides and prepared with few additional costs or risks. If you need more confidence in your plan, or you need to hold the response time down to a reasonable level, or if the future you are planning for includes significant changes to the transaction mix or vital systems, then you need to do either Load Testing or Modeling. The overall load starts off low and then increases in stages to the point where you achieved your goal or you fail because some resource has hit a limit and has become a bottleneck. When that happens, throughput stops increasing, response times climb to an unacceptably painful place and things break. Load tests depend on good performance monitoring to keep an eye on critical system resources as the load builds. For any test you need to know how much work you are sending into the system, the throughput and response time for the completed work, and how the system resources are responding under that load. As we say in New England: For a load test to be really useful it must test the entire part of the transaction path that you care about. If your product is your website then you need to test from where your users are: The three big keys to a successful load test are: If you only got half way to your goal before you hit a bottleneck, then every measured resource is going to be doing twice the work once you fix the current bottleneck. So take all the peak measurements and double them to get a good idea of what you are likely to run out of as you push the test to the goal load. Load testing can also help you find where subsystems break, and isolate the effect of one transaction type. Imagine your workload is an even mix of Red and Blue transactions, but it is the Blue transactions that really exercise some key component of your computing world. Create a load test that sends in all Blue transactions and you can collect the data you need without the interference of the Red transactions. Load testing can tell you many interesting things, but it can only give you data on the computing infrastructure you have now. To use a metaphor, running a race tells you about your current aerobic capacity, not the capacity you will have after six more months of training. If you need to predict a future that is different from your present, then you need to model. To model, you are going to need the data you collected with performance monitoring and maybe some data from load tests. Modeling Modeling computer performance may be unfamiliar to you, but is should not be frightening. Everyday, in companies all over the world, regular people build simple models that answer important business questions. Here are a few general truths about modeling that may surprise you: When your boss asks you to predict future performance of some application, first see if you can do a simple capacity plan. If circumstances change so much that you lack confidence in that prediction, then try modeling. Examples of big changes that preclude simple capacity planning might be things like, large application or middleware changes or a big change in the incoming workload. Modeling is the only way to project the performance of an application in the design stage where there is no performance data to scale. In performance work there are really only two possible situations. Either you can directly measure the performance of a live system under load, or you have to guess about a theoretical future situation. You must accept that: How accurate does a model need to be? The flip answer is: A useful answer is: The closer to the utilization limit or the projected storm track , the more precise you have to make your model. Unfortunately, the above model of Hurricane Irene, at that moment, could not see far enough into the future to predict the devastating flooding Irene would cause in my home state of Vermont. All models have limits. If you respect these limits, modeling is doable, useful and has its place when you are asking questions about the future. Chapter 3 Useful Laws. This chapter gives you the keys to understanding all computer performance problems and provides an important foundation for the next four chapters.

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3: World Book Encyclopedia: List of Books by Author World Book Encyclopedia

Art and Science of Visual Illusions (International Library of Psychology) PDF Kindle Authenticity and the Cultural Politics of Work: New Forms of Informal Control PDF Kindle Back to the Table: The Reunion of Food and Family PDF Download.

Sound Wordplay Start off your unit by looking at words that imitate the sounds they represent, such as hiss, rustle, growl, and chirp. This onomatopoeia enriches language, allowing us to capture sound in writing. How do they make you feel? Encourage them to name sounds which are pleasant to them and why , and which are unpleasant, and record these on a T-chart. Sound Walk Hearing allows us to communicate with others and to navigate our world. Invite students to experience a heightened awareness of all the important sounds around them with a sound walk through several areas of your school, such as the hallway, cafeteria, library, and playground. Ask students to pay attention to all the different sounds they hear along the way. Then have members of the class compare their experiences. What different sounds did each person hear along your journey? Next, have pairs of students take turns observing the sounds in different areas of your classroom or school more closely. You may want to monitor blindfolded students closely, or ask student pairs to choose a location and sit before the listener is blindfolded. Encourage students to use rich, descriptive language in their observations. After everyone has been a listener, ask students to write short stories inspired by â€” and including â€” at least five of the different sounds they experienced. Sign Language Challenge Many people that have hearing loss or are deaf are not able to communicate by speaking, since humans usually learn to speak by imitating the sound of the words they hear. However, some hearing-impaired people learn to speak by reading lips, and imitating the way our mouths move when we speak. Other hearing-impaired people learn to "speak" with hand gestures. This is known as sign language. Invite students to visit www. Share with students some of the pictures and video clips showing signs in action; then challenge each student to learn â€” and teach to the classâ€” a short message in sign language. To extend this activity, try teaching a short lesson using only signs! Sound Jeopardy This fun, interactive game is a great way to liven up your sound science unit â€” and reinforce good listening skills. Begin by compiling a selection of different sounds from sound effects and nature CDs, available at the public library. You can also find specific sounds free online at www. Next, arrange the sound selections into categories, such as farm animals, sea creatures, transportation, or musical instruments. Divide the class into at least three groups. Then challenge students from each group to take turns choosing a category and a point value, and trying to guess what each specific sound is. By vibrations, moving in waves to our ears! Illustrate this concept for students with a simple experiment. Loosely stretch a rubber band between your thumb and forefinger, and ask students to predict what will happen when you pluck it. Then have students try plucking their own rubber bands and recording the results. Encourage students to experiment with their rubber bands to try to produce different kinds of sounds. To extend, challenge students to find other ways to demonstrate the vibration of sound, such as strumming a ruler with one end held firmly against the edge of a desk. Cover a bowl wih plastic sandwich wrap. Pull the plastic tight across the top in all directions until it is flat and smooth. Use a rubber band to secure the plastic wrap securely. Then sprinkle some pepper onto the plastic â€” and make some noise! Hold a pot and spoon near the bowl and hit the bottom of the pot hard. What do students see? Explain that the loud noise you made is a vibration, which gets transmitted through the air, to the plastic. The plastic vibrates, and makes the pepper dance. Invite students to try this experiment for themselves. Label each of the parts together as a class, or ask students to work independently, guided by books or Web sites see "Sound Science Resources," above. To extend, have small groups of students each research and create a presentation on a part of the ear in greater depth. Parts-of-the-Ear Role Play Invite students to learn about the parts of the ear and how they help us hear with this exciting role-playing activity. To begin, assign each part of the ear to a different student or small group. Amp Up the Sound! The loudness of sound, or its amplitude, is measured using the decibel. Small differences in amplitude short sound waves make quiet sounds, while large differences tall sound waves make loud sounds. Cover a radio speaker with a sheet of paper, and sprinkle uncooked grains of rice on top. Turn the radio on and have students observe the rice. Next, crank up the music all the way â€” and watch out for flying rice! Based on what they observed, ask students to compare this experiment with the sound wave experiment above. To extend, tell students: Explain that when a person speaks, two strips of muscles called vocal cords come together, causing the air from our lungs to vibrate. As giggles ensue, relate what the kids just experienced to the vocabulary from the "Sound Science Glossary," above. When you speak in a low-pitched voice, the vocal cords vibrate air more slowly â€" at a lower frequency â€" than when you speak in a high-pitched voice. Then ask students to research the different frequencies of some additional sounds and add to the chart. Out of Our Range Every minute of every day, we hear sounds. Many of these are made by animals we hear birds calling, dogs barking, and bees buzzing. However, we actually are hearing only some of the noises that the animals of the world can make. Many animals have special abilities to both generate and hear sounds that are either too high-pitched or too low-pitched for humans to hear. Do students know any of these animals? After students have guessed, share with them the "Animal-Sound Frequencies" chart. Then challenge them to name why they think each animal has these special abilities. Animal Languages Many animals make and use sounds for specific purposes, such as "talking" to others of their own kind. They call to each other to find mates, to warn of approaching danger, and to keep in touch when they cannot see each other. Animals also make sound to find prey. On the other hand, bats and whales find prey by sending out streams of very high-pitched sounds, then listening to the echoes of these sounds. Once you have shared some of this information with students, invite them to choose an animal and research the sounds it makes. Encourage students to enhance their presentations to the class with sound recordings of their chosen animals, which can be found at www. Amazing Animal Ears Most mammals have pinnae â€" exterior ears â€" for gathering and funneling sound inward. We know that the placement and mobility of ears affect sound how sound is gathered. Demonstrate this to students with a fun classroom demonstration. Invite students to create their own animal-ears headbands using the template reproducibles below. To make a hippo- or rabbit-ear headband, attach felt ears to the top of headband; for a frog- or elephant-ear headband, attach ears on either side. For reference, check out:

4: The Science of Sound | Scholastic

This book makes a valuable contribution to the exploration of this important science, from the perception of sound -- hearing -- to the propagation of sound waves, and the elements of music-making. Like the other books in the award-winning Make it Work! series, the guiding principle of this title is "learning by doing.".

5: David Glover: List of Books by Author David Glover

Andrew Haslam is a published author, designer, illustrator, and a photographer of children's books and young adult books. Some of the published credits of Andrew Haslam include Ships (Make it work!), Arctic Peoples: The Hands-On Approach to History, Body: The Hands-On Approach to Science (Girl Zone (Paperback)), and Building: The Hands-On.

6: Free Space (Make It Work! Science (Paperback Twocan)) PDF Download - AndrewReid

Label each of the parts together as a class, or ask students to work independently, guided by books or Web sites (see "Sound Science Resources," above). To extend, have small groups of students each research and create a presentation on a part of the ear in greater depth.

7: Science Solves It! - Kane Press

Paperback from Â£ 6 Used from Â£ 2 New from Â£ Introduces basic facts about sound, how it is produced, transmitted, and received with instructions for related experiments and projects.

8: The Physics of Sound: How We Produce Sounds

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Soprano singers make sound waves with a high pitch, while bass singers make waves with a much lower pitch. The frequency is simply the number of waves something produces in one second. So a soprano singer produces more energy waves in one second than a bass singer and a violin makes more than a double bass.

9: The Reading Brain in the Digital Age: The Science of Paper versus Screens - Scientific American

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