**Subject area/course**: Science / Life Science

**Grade level/band**: 9th

**Task source**: SCALE and The New York City Teacher Design Team; Author: Michal Lomask

**The Health Effects of Cell Phone Use**

**STUDENT INSTRUCTIONS**

1. **Task context**:

Science and technology have advanced human culture throughout history and continue to shape our society. With the advancement of scientific and technological applications, also come problems that require all citizens to critically assess the outcomes of using different technologies.

For example, can you see yourself living without using a cellular phone? Probably not, as cell phones have become one of the main communication tools that people use all over the world. Are cell phones safe to use for a prolonged time? Can the increased use of cell phones increase the incidence of brain cancer among young users, as some health advocate groups claim?

Cancer is an uncontrolled growth of cells in the human body and it is a known fact that exposing dividing cells to several kinds of radiation can cause cancer. Scientists and public health professionals around the world have been investigating and debating the issue of cell phone safety, and the rulings are not yet in.

In this activity you will explore the issue of safe cell phone use. Your exploration will be based on evidence established by researchers and published in various on-line sites. Based on data you collect, you will have to take a side on the debate regarding health effects of cell phones and write a short, five-paragraph position paper, describing and supporting your opinion on this issue.

**Your Task:**

In this activity you will do web-based research about the use of cellular phones, collect relevant information and then take a position on the question: “*Should parents limit the cell phone usage time of their teenage children*? You will:

* search the Web for relevant and credible evidence
* summarize your information in two different charts
* participate in a group or class debate and write a final “Position Paper” in which you will support your position about the issue by evidence collected in your research.

# Listen for instructions from your teacher on the following activities:

**ACTIVITY 1:** Discuss cell phone use in your small group: and respond to the following questions:

* How many minutes a day does each student use the cellular phone?
* How much time is spent on talking and how much time is spent on texting?
* What are some of the potential negative effects of cell phone use (e.g., health problems, distractions, and waste of time)?

In your science notebook, record and summarize the data from all students in your group. Create a visual (visual can be a graph or a picture or a funny cartoon) to display your data.

**Activity 2:** Read the following information on Internet Research

# Effective Use of the Internet for Science Research

The Internet is like a giant, continuously growing library that contains any information that you want. But because this library is a little disorganized, researchers must use good judgment and evaluate sources carefully. Unlike textbooks that are reviewed and edited by professionals, content on internet pages is not always reviewed; therefore there are no guarantees that the information one finds is accurate and objective. Also, some sites pay a fee so that their web pages will pop at the top of the list when you use different search engines; therefore sites on the top of the search list are not always the most relevant and important.

Begin your search using the following sites. Record what you learn using the provided format: <http://www.howitworks.net/how-cell-phones-work.html>- simple explanation about the technology that makes cellular phones work

<http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones>– this government web page is a little lengthy, but it provides credible scientific evidence about the safety of using cellular phone.

<http://www.cancer.org/Cancer/CancerCauses/OtherCarcinogens/AtHome/cellular-phones>- another site that provides balanced information and tips of how to reduce exposure to RF emitted from cellular phones.

Continue your search by entering search terms related to the specific health effects of cell phone use that interest you:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Google | Yahoo | Safari | Firefox | Bing |

You may also wish to use portals such as Ask.com or AJkids.com

Use the list below to assess the credibility of your sources:

* **.com** - commercial business site
* **.edu** - educational site (usually a university or college)
* **.gov** - U.S. governmental/non-military site
* **.mil** - U.S. military sites and agencies
* **.net** - networks, Internet service providers, organizations
* **.org** - U.S. non-profit organizations and others

As a rule of thumb, you can generally rely on the GOV and EDU hostnames to present accurate information. The NET, ORG, MIL, and COM domains are more likely to host pages with their own personal or organizational agendas and require additional verification. For each article you choose, consider who owns the website and whether that has an impact on the credibility of the information provided. The owner of the website should be listed on the site, or you can go to the following link to find the owner of the source <http://www.whois.net/>. For more information about assessing the reliability of a source, check out “The ABCs of Web Literacy” at <http://gethelp.library.upenn.edu/guides/tutorials/webliteracy/weblitintro.html>or the second page of Kathy Schrock’s “Critical Evaluation of a Webpage” at [http://school.discoveryeducation.com/schrockguide/evalhigh.html.](http://school.discoveryeducation.com/schrockguide/evalhigh.html)

# \*\*\* STOP WAIT UNTIL YOUR TEACHER INSTRUCTS YOU TO GO FURTHER\*\*\*

**Use the Internet to research health effects of cell phone use and record observations on the provided note taking template (use a separate template for every website you search and take information from). Use the research guide from Session 1 to help you get started.**

**Research Notes Page (use one page for each web site)**

|  |  |
| --- | --- |
| What search engine did you use? |  |
| What keywords did you use in this web search? |  |
| What is the URL of the website? |  |
| Who is responsible for the content of this website?\* |  |
| In what date was the site/article uploaded or updated?\*\* |  |
| Does the site have a “mail-to” link for asking questions? |  |
| Based on the above, do you trust this website? Why? |  |
| List the main claims and supportive evidence that you learned from this website |  |

\*(usually found at the header, or bottom of the webpage, or can be researched at [http://www.whois.net/)](http://www.whois.net/)

\*\*If this information isn't volunteered, you can look at the file properties (hold the mouse over the link, right click, Properties), which will tell you the size and date of the file at the end of the hyperlink.

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1. **Final product**:

A position paper (also called an argumentation paper) is a genre of writing in which you take a position about an issue and write a concise argument to convince the reader to accept your position. Preparation for the writing includes investigating the topic, generating claims and counterclaims, and collecting relevant evidence to support your position.

A claim is a specific and debatable statement about an issue. For example, if you take the position that “Eating apples makes you healthy”, a supporting claim might be: “Apples have high levels of vitamin C”. Is this claim true? To find out, you will have to search for evidence, either by doing your own experiment or by collecting data from other scientific experiments or documents. Most claims have counterclaims. In this example the statement “Apples are bad for you because they have high amounts of sugar” might serve as a counterclaim, which should also be validated through experimentation or research.

**What kind of claims are there?** A paper written for students in Purdue University (<http://owl.english.purdue.edu/owl/resource/588/1/>) has this description of claims:

* **Claims of fact or definition:** These claims argue about what the definition of something is or whether something is a settled fact. Example: What some people refer to as global warming is actually nothing more than normal, long-term cycles of climate change.
* **Claims of cause and effect:** These claims argue that one person, thing, or event caused another thing or event to occur. Example: The popularity of SUV's in America has caused pollution to increase.
* **Claims about value:** These are claims made about what something is worth, whether we value it or not, how we would rate or categorize something. Example: Global warming is the most pressing challenge facing the world today.
* **Claims about solutions or policies:** These are claims that argue for or against a certain solution or policy approach to a problem. Example: Instead of drilling for oil in Alaska we should be focusing on ways to reduce oil consumption, such as researching renewable energy sources.

# Graphic Organizer for Evidence-based Position

|  |  |
| --- | --- |
| **Claims supporting my position** | **Claims supporting the opposing position** |
|  |  |
|  |  |
|  |  |
|  |  |

**Directions: Use this table to organize what you have learned in Sessions 1 and 2, with the purpose of creating an evidence-based position regarding cell phones.**

**My Position:**

**Additional Information**

1. **Knowledge and skills you will need to demonstrate on this task:**

You will learn how to use the Internet effectively to locate reliable information, collect and evaluate evidence, and write concisely and objectively about science-related issues.

1. **Materials needed:**

The following items should be provided:

Session 1

Provided texts (student lead-in packet: Session 1)

Provided graphic organizer (student lead-in packet: Session 1)

Smart Board or chart paper

Session 2

Provided texts (student lead-in packet: Session 2)

Provided graphic organizer (student lead-in packet: Session 2)

SmartBoard or chart paper

Computer or tablet with internet access

Session 3

Provided texts (student lead-in packet: Session 3)

Provided graphic organizer (student lead-in packet: Session 3)

SmartBoard or chart paper

Session 4

Student response booklet

Notes from Sessions 1- 3

1. **Time requirements:**

You will have approximately 4 class periods to complete. Your teacher will provide additional details.

1. **Scoring:**

Your work will be scored using the Science, Technology and Society Position Paper rubric. You should make sure you are familiar with the language that describes the expectations for proficient performance.