

Science and Technology 11

Personal Technologies

Blackline Master

This blackline master package, which includes all section assignments, as well as selected worksheets, activities, and other materials for teachers to make their own overhead transparencies or photocopies, is designed to accompany Open School BC's ***Personal Technologies*** module. The course and blackline master were developed by BC teachers, instructional designers, graphic artists, and multimedia experts.

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The Science and Technology 11 course consists of 4 modules and a CD for each module. Science and Technology 11 is available in both print and online versions. This course can be purchased as individual products. All are available from Open School BC. There is no textbook required for this course or module.

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Section 1, Lesson A, Activity 1

Survey: Personal Technologies in my World

Select each personal technology that either you or someone you know uses.

- cell phone
- MP3 player
- docking speakers for MP3 player
- PDA (personal digital assistant)
- camera phone
- digital camera
- digital video camera
- laptop computer
- eBook reader, like Kindle
- GPS receiver
- remote control toy
- USB flash drive
- heart rate monitor
- portable media player/DVD player
- short range wireless connection, like Bluetooth
- Google Earth
- online social networking site, like Facebook
- wireless headset
- battery charger

Interpreting Your Score:

0–2:

You live in a world without many personal technologies. How do you think your experience is different from others'?

3–8:

You're starting to see the influence of personal technology in your environment. How do these devices help you? Do you notice yourself doing anything differently than you did before?

9–15:

Personal technologies play a significant role in your environment. Think about what you do now that you couldn't without these devices.

16–20:

You live in a world saturated with personal technology!

Section 1, Lesson A, Activity 2

Shared Features of Personal Technologies

Identify the features found in each of the following technologies. Circle your answers from the choices provided.

1. remote control

polymer case or shell | keypad or buttons | battery | microprocessor | microphone | speaker | LCD

2. laptop computer

polymer case or shell | keypad or buttons | battery | microprocessor | microphone | speaker | LCD

3. digital camera

polymer case or shell | keypad or buttons | battery | microprocessor | microphone | speaker | LCD

4. digital answering machine

polymer case or shell | keypad or buttons | battery | microprocessor | microphone | speaker | LCD

5. calculator

polymer case or shell | keypad or buttons | battery | microprocessor | microphone | speaker | LCD

Section 1, Lesson B, Activity 1

How Web 2.0 Are You?

How many of these Web 2.0 tools and services do you use, and how often? Circle your answers.

Blogs

1 – Never

2 – Rarely

3 – Sometimes

4 – Often

Wikis

1 – Never

2 – Rarely

3 – Sometimes

4 – Often

Social Bookmarking (e.g., del.icio.us)

1 – Never

2 – Rarely

3 – Sometimes

4 – Often

Multimedia sharing sites (e.g., Flickr, YouTube)

1 – Never

2 – Rarely

3 – Sometimes

4 – Often

Podcasts

1 – Never

2 – Rarely

3 – Sometimes

4 – Often

Social Networking Sites (e.g., Facebook, MySpace)

1 – Never

2 – Rarely

3 – Sometimes

4 – Often

Add up your scores. Check your total on the next page to see how Web 2.0 you are!

Answer:

1–6:

You aren't into Web 2.0 yet, are you?

7–12:

You've heard of these tools but don't use them very often yet. Do you plan to in the future?

13–18:

You are quite familiar with Web 2.0 tools and use them a lot.

19–24:

It's clear that Web 2.0 tools and services are pretty important to you—you use them a lot!

Section 1, Lesson B, Activity 2

The Impact of Personal Technologies

Identify one positive and one negative impact of each of these technologies.

1. Cell phones

Positive impact:

Negative impact:

2. The Internet

Positive impact:

Negative impact:

Section 1, Lesson D, Activity 1

Fair Use or Copyright Infringement?

Identify whether each of these examples is a fair use or a violation of copyright. Explain your answers.

1. A magazine printed excerpts from a celebrity's private memoirs without her consent. This seriously damaged the chances the celebrity could sell her memoirs to another magazine.
2. In 2006 independent movie producers released a series of comedy shorts on the Internet. These shorts featured Chad Vader, the slightly befuddled and underachieving cousin of Darth Vader from Star Wars. Extensive references are made to the actual movies, but it's done in a comical way.
3. A person running for political office used 15 seconds of his opponent's campaign song in a political ad for purposes of political debate.
4. A band copies the guitar riff and the words "I can't get no satisfaction" from the famous Rolling Stones song into a new song. Nothing else is copied.

Section 1 Assignment: Part 1

Categories of Personal Technologies

As you've learned, many personal technologies have more than one use. Some common uses are:

- Communications
- Archival/storage
- Entertainment
- Health
- Fitness/recreation
- Productivity

Identify the use or uses for each of these personal technologies. Explain each of your answer(s) in 1-2 sentences. The number in brackets is the number of required answers for each personal technology. For example, the GPS receiver belongs in two categories from the previous list. (There may be more but you only need to mention two.)

1. GPS receiver (2 answers)

a. _____

b. _____

2. Laptop computer (3 answers)

a. _____

b. _____

c. _____

3. Digital camera (2 answers)

a. _____

b. _____

4. Portable DVD player (1 answer)

a. _____

5. Nike + iPod Sport Kit (2 answers)

This is a small pedometer in the shoe that wirelessly transmits data such as the number of steps taken, time elapsed, calories burned, etc. to your iPod Nano. You can see your stats and listen to music while you run.

a. _____

b. _____

Evaluation Guidelines	Marks
1 mark for each correct answer + 1 mark for each correct explanation	20
Total Marks	/20

Option 2: Going Without Personal Technology

1. Go without one of your personal technologies for three days. Be sure to choose something you use regularly. Take note of each time you wanted to use the technology but didn't. Write down what you were doing and how not using the technology affected you.

If you forget and find yourself using the technology, just start over. Don't give up altogether!

2. At the end of the three days, write a 300-word reflection on your experience. Answer the following questions in your reflection:
 - a. Is your chosen technology absolutely necessary or were you able to do without it for three days?
 - b. Could you have gone without it longer? Forever?
 - c. How did it feel to go without it?
 - d. How, if at all, did your life change? What did you find yourself doing during the time you would normally be using that personal technology?

Evaluation Guidelines	Marks
Reflection is logical and well thought out, with proper spelling and grammar	15
Total Marks	/15

Section 1 Assignment: Part 3

Music Piracy

1. Describe two ways the major music companies have tried to stop music piracy. Explain why these strategies have or haven't been successful. You may create a poster or answer in 2-3 paragraphs. (10 marks)

2. What are your thoughts on music piracy? Have you ever obtained music without paying for it? Do you know anyone who has? Do you see it as stealing? Why do you think people do it? Write your thoughts on this topic in one or two well thought-out paragraphs. (10 marks)

Evaluation Guidelines	Marks
Question 1	10
Question 2: You've provided a thoughtful answer to the topic. Your views are clear and well supported.	10
Total Marks	/20

Section 1 Assignment: Part 4

Examples of Mashups

Find **two** examples of mashups on the Internet. For each example provide the following information:

The title of the mashup

The URL

The names of the original copyrighted materials that are mashed together

A brief description of the mashup

Your opinion on whether each example is fair use or copyright infringement, and why

Example 1:

Example 2:

Evaluation Guidelines	Marks
Each example will be marked out of 10 as follows:	
Title and URL of the mashup	1
The names of the original copyrighted materials that are mashed together	1
A brief description of the mashup	3
Your opinion on whether each example is fair use or copyright infringement, and why	5
Total Marks	/20

Section 1 Assignment: Part 5

RIP: A Remix Manifesto

RIP: A Remix Manifesto is an open source documentary about copyright and remix culture.

Go to the following URL: <http://opensourcecinema.org/project/rip2.0>

Watch Chapters 2 and 3 of *RIP: A Remix Manifesto*, and answer the following questions.

Chapter 2: CopyRIGHT vs. CopyLEFT

1. According to Brett Gaylor, the Internet has become a battleground. On the one side is the copyRIGHT, on the other side is the copyLEFT. Explain each group's position regarding remixes. (4 marks)
2. Identify the four principles of The Remix Manifesto. Explain what you think each of them means. (8 marks)

Chapter 3: Culture Always Builds on the Past

3. In this chapter Brett meets with a copyright official for the US Government to get her thoughts on mashups. Brett shows her a video clip of Girl Talk remixing an Elvis Costello song. Girl Talk adds pauses, different beats, and other background layers. He turns the song into something completely different. Even Elvis Costello would have a hard time recognizing some of it.

Girl Talk has built a new song from one that existed. But is it copyright infringement? What does the copyright officer say? (3 marks)

4. Girl Talk isn't the first artist to make new music from old stuff. Describe one example from the movie that proves this point. (3 marks)
5. Reading between the lines, what is Gaylor's point with all this? (2 marks)

Evaluation Guidelines	Marks
Total Marks	/20

Section 1 Assignment: Part 6

Remixes: What Do You Think?

What do you think? Are you in support of the CopyRIGHT or the CopyLEFT when it comes to remixes? In other words, are people who create music remixes criminals? Why or why not? Support your opinion in a well thought-out paragraph. (10 marks)

Evaluation Guidelines	Marks
Your position is well thought out	4
You have defended your position with plausible arguments	4
Grammar and spelling are accurate	2
Total Marks	/10

Section 2, Lesson A, Activity 1

The Evolution of the Camera

Answer the following multiple-choice questions.

1. Identify two parts of a digital camera that are different from a traditional camera.
 - a. the lack of film
 - b. a sensor that records light
 - c. the lens
 - d. the shutter
2. How does a digital camera capture images differently from a film camera?
 - a. releases the shutter with a button
 - b. captures light information on a sensor then converts it to digital form
 - c. allows light to enter through the shutter
 - d. controls the amount of light with the aperture
3. Does lossy compression improve an image quality, or degrade it?
 - a. improve
 - b. degrade
4. What is the name of the light-sensitive spots that capture light information in a charge-coupled device?
 - a. pixels
 - b. compression points
 - c. photosites
 - d. microprocessors

Section 2, Lesson B, Activity 1

Potential or Limitation?

A digital pen captures handwritten notes or hand-writing and converts it into digital text. Like all personal technologies, the digital pen has potentials and limitations.

Identify each of these statements as a potential or a limitation to the digital pen.

1. The pen digitizes the words and drawings that a user puts down on paper.
2. The user must write on special paper made by the same company that makes the pen.
3. The pen can record sounds and connect them to what the user writes.
4. The pen will allow interactive paper based products, such as interactive business cards.
5. The user can write commands next to words on the page such as “define,” and the pen will display a definition in the small screen on the side of the pen.
6. The screen on the side of the pen is about 5 cm long.
7. The pen is bigger and heavier than a regular pen.
8. The pen uses technology called 3-D recording for better identification of sounds in poor recording conditions.
9. Developers will have access to tools to build their own applications for the pen.

10. The speaker on the pen lets you hear what was recorded.

11. Instead of scanning notes to digitize them, you can upload your notes using the docking device and a USB cable.

12. Specialty ink cartridges are used, and must be replaced using the USB cradle.

Categories of Adopters

Identify the category of adopter that best matches each of these statements.

1. Spend \$1500 on a computer? I don't think so! I get along just fine without one, thank you.
2. Jeremy says now's the time to buy a DVD player. He says the quality is so much better now and the prices have really dropped, He knows what he's talking about.
3. Everyone keeps telling me I should buy a cell phone, but for now my regular phone works fine. One day I'll switch but not right now.
4. So what if it has a few problems? It's new on the market and I can't wait to try it out. I like to be the first to get all the new stuff.

Section 2, Lesson D, Activity 1

Technological Junction... What's Its Function?

Select the activities you can perform with each of the following personal technologies.

1. You used to be able to just play video games on a video game console. Now you can:

- find out your location
- connect to the Internet
- play music
- display maps
- play games
- watch TV shows
- play movies

2. Digital audio players used to just play music. Now many of them also let you:

- phone people
- display photos
- record video
- play games
- store contact information
- watch TV shows
- watch movies
- play music

3. In the past you could only use a telephone for calling someone else. Now, if your phone is one of the many “smart” varieties, you can:

- store documents
- send emails
- listen to the radio
- watch movies
- connect to the Internet
- view Web content
- take photos
- play music

Section 2, Lesson E, Activity 1

Fill in the Blanks

MP3 player | radio frequency technology | thumb drive | battery
integrated circuit | keyboard | Bluetooth technology | LCD panel | audio system
touch screen | memory | Wi-Fi | Output components | Transistors

Fill in the blank with one of the following terms to complete the following statements about technology systems.

1. An _____ is an example of a multitasking technology that works independently of a system, as well as within a system.
2. _____ enables cell phones to transmit and receive information such as voice or text, allows remote controls to work with a television, and allows your digital alarm clock to wake you up with the morning news.
3. A _____ works within a system, and does not function by itself—it needs to be connected to a computer.
4. A component that stores and distributes power to the circuit in many different technologies is called a _____.
5. The _____ is a tiny technology system that can control everything from computers to digital microwave ovens to cellular phones.
6. The _____ is an input technology that works in different systems, from computers and netbooks to smartphones.
7. _____ uses radio frequency technology to connect devices in a wireless technology system.
8. One multi-tasking technology that works as an output feature in many different personal technologies is the . _____
9. The _____ plays a role in DVD players, cell phones, headphones, and laptops.
10. The _____ is a personal technology system that allows for input and output, and simplifies an interface.

Section 2 Assignment: Part 1

The Digital Camera

Answer the following questions about the evolution of the camera.

1. Identify three features that SLR film cameras and SLR digital cameras have in common. (3 marks)
2. Name three parts of a digital camera that are not found in a film camera. (3 marks)
3. How does an SLR film camera capture and store light information? (3 marks)
4. How does a digital SLR camera capture and store light information? (3 marks)
5. What is *compression*? Why are digital photo files often compressed? (3 marks)

Evaluation Guidelines	Marks
3 marks per question	15
Total Marks	/15

Section 2 Assignment: Part 2

Potential and Limitation in My Personal Technology

Select **one** personal technology that you currently own. Make sure you select something you actually use, because your experience in using this technology will guide you in completing this assignment. It might be one of the following:

- smartphone
- MP3 player
- docking speakers for MP3 player
- digital camera
- laptop computer
- eBook reader, like Kindle
- GPS receiver
- portable media player/DVD player
- wireless headset

1. Identify **two** limitations and **two** potentials for this personal technology. To do this, ask yourself the following questions:
 - What could I see this personal technology doing in the future? As I have been using this device, what have I wished it could do? What other technologies do I wish it could work with? What about this technology or devices like it makes me think this potential is there?
 - When you think of the possible functions, think about their value to people. Would people actually find a use for the new function?
 - Are these reasonable expectations? (Being realistic in predictions of potential: this means I might reasonably expect my cell phone to become even smaller, but I couldn't reasonably expect it to fly across the room and into my hand on a voice command.)
 - What do I think are the obstacles to this technology reaching its potential? What other technologies does this device not work with, but maybe should? These are its limitations.

Look at the owner's manual or technical sheet. If you no longer have it, you may have to do an Internet search to find it. It will give you the detailed information you need about your device, such as storage space, battery life, and so on. If you use this information in your assignment, be sure to cite the source—use a footnote to do so.

How else can you find out about potentials and limitations in a technology system? Look up a review of your chosen technology. Often reviews will cover what is lacking—and what the reviewer wishes the technology could do, or what he or she wishes the technology would work with (how it could function better in a system). Ask yourself if you share some of the same views.

Also, as you imagine improvements, think about the microscopic view on up: your improvements could be on the tiniest level of technology systems, or it could be how the technology integrates with others in larger systems.

2. Give reasons why each is a potential or a limitation.

Technology chosen: _____

Potential in my personal technology

Technical detail:

Potential:

Reason:

Technical detail:

Potential:

Reason:

Limitations in my personal technology

Technical detail:

Limitations:

Reason:

Technical detail:

Limitations:

Reason:

Evaluation Guidelines	
Total Marks (6 x 2)	/12

Section 2 Assignment: Part 3

Adopting a Personal Technology

1. Define the following terms, in your own words. (10 marks)

a. Innovators

b. Early Adopter

c. Early Majority

d. Late Majority

e. Laggards

2. a. Think of one personal technology you own (e.g., cell phone, DVD player, or computer). Now think about when you bought it. Were you one of the first people to buy it or did you wait until it became more popular? Identify what category of adopter you belonged to for this purchase..

Early Adopter	Early Majority	Late Majority	Laggard
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b. Now think about the reasons why people adopt personal technologies (as mentioned in Lesson D). Which of these reasons motivated you to buy this technology? Were there other reasons as well or instead? Explain your answer in full sentences. (10 marks)

Evaluation Guidelines	Marks
Question 1	10
Clear reasons are given for adopting the chosen personal technology when you did, and why you did.	10
Total Marks	/20

Section 2 Assignment: Part 4

Technology Convergence

1. What does the term technological convergence mean? (2 marks)
2. Describe one personal technology that demonstrates technological convergence. Identify the technologies that it combines. (2 marks)
3. Describe one advantage of technological convergence. (2 marks)
4. Describe two disadvantages of technological convergence. (4 marks)

Evaluation Guidelines	Marks
Total Marks	/10

Section 2 Assignment: Part 5

Features of Personal Technologies

Now you know about some of the common features of personal technology devices, and how they are shared amongst items in different categories. In this part of your section assignment, you will examine one feature in detail.

Resources

<http://www.howstuffworks.com/>

http://en.wikipedia.org/wiki/Main_Page

1. Write a short description of how one of the features performs in a personal technology of your choice. Choose a technology you are interested in—something you actually use on a regular basis. This will help you in the next part of your Section Assignment. Your personal technology might be one of the following:

digital camcorder
GPS receiver
digital thermometer
answering machine
laptop computer
media player
cell phone

2. Choose one of the following features (it must be present in your chosen personal technology):

microprocessor
ROM memory
flash memory
liquid crystal display (LCD)
speaker
microphone
semiconductor
battery

3. How does that particular feature work in your chosen particular technology system?
 - For example, How does an LCD panel work in your media player?
 - How does it interact with other parts within the device?
4. Does your chosen feature multi-task?
5. Does it work in more than one kind of system?

6. What kind of systems does it work in aside from the one you chose?
7. Write a complete paragraph (5 to 7 sentences) in your own words. Include diagrams, photos, or another visual element to help your explanation.

Evaluation Guidelines for Student

Be sure to look at the Features of Personal Technologies Scoring Guide. Your instructor will use this to evaluate this part of your section assignment.

Total Marks (6 x 2)

/12

Section 3 Assignment: Part 1

Emerging Personal Technologies

In Lesson A we introduced you to three exciting new personal technologies. Each of these has the potential to disrupt or replace devices that already exist.

Choose one of the following emerging personal technologies from Lesson A:

Photosynth

Microsoft Surface

Organic Light Emitting Diode (OLED)

In a minimum of one paragraph explain whether or not you think this technology will succeed or fail. What is it about this technology that makes you feel that way? What uses do you see for it (or not)? Is it something that you would be willing to try out? These are just some of the questions you should address in your response.

Evaluation Guidelines	Marks
Total Marks	/10

Section 3 Assignment: Part 2

Survey of Other Emerging Personal Technologies

In Lesson A, you learned about four personal technologies that were new to the market in 2009. By the time you read this assignment, some of those technologies may have become quite popular, while others may have faded from history. These are just a few of the many personal technologies that are introduced every year. In this assignment you will research five other emerging technologies and write a short description and assessment of each of them.

Using the Internet and/or other sources (books, magazines, etc.) research five (5) emerging personal technologies. For each personal technology:

1. Write a maximum one-paragraph description of it. Describe what it does and how it works. Identify any other technologies it incorporates (i.e., is it a convergent device, using technologies from existing products, but in new ways?).
2. Identify one potential and one limitation for each personal technology. What things could it make possible (e.g., how might it improve communication, productivity, etc.)? What are some possible roadblocks?
3. Include at least two links to websites or other resources that describe the technology.

Evaluation Guidelines	Marks
Clear description for each technology	10
Plausible description of one potential and one limitation for each technology	5
Links or references included	5
Total Marks (20 x 5)	/100