Technologies in the Workplace

Summary

According to The American Heritage® Science Dictionary, technology is:
1. *The use of scientific knowledge to solve practical problems, especially in industry and commerce.*
2. *The specific methods, materials, and devices used to solve practical problems.*

But what does technology mean to you? Computers? Smart phones? Tablets? It's all those things. And so much more. For example, the wheel, which was invented around the 4th century BCE, is one of the most commonplace yet important technologies ever created! So technology refers to the stone tools used by prehistoric people as well as the most sophisticated instruments used by physicians in hospitals.

No matter what the workplace environment, technological resources are there – ready to be put to use. It's essential for us to know how to select the appropriate technology...equipment, machine, tool, or electronics...for an application and to know how to use and maintain these technological resources safely and effectively.

Primary Workplace Readiness Skill
Job-specific Tools and Technology

Secondary Workplace Readiness Skills
Workplace Safety
Efficiency and Productivity
Creativity and Innovation

Vocabulary

- Adobe Creative Suite
- environment
- machines
- manufacturer specifications
- Microsoft Office
- orderliness
- PPE
- presentation software
- resource
- SOPs
- spreadsheet software
- technology
- telecommunications
- tool
- using the right tool for the job
- video conferencing
- word-processing software

Overview
Technology is everywhere; it plays a big role in every workplace. When we study technology and how to select and use it safely, we're studying "human-made" items and applications – not our natural world. No matter what occupational area you're working in, new technology brings new challenges.

Here are some of the technology applications specific to five areas:

- *Transportation Technology* provides a way for people, products, and materials to move from place to place. For example, airplanes, trains, cars, ships, and the space shuttle are all types of transportation.

- Both *Biotechnology and Agricultural Technology* deal with living things like plants, animals, and people. Bio-related technology creates products such as medications, vaccines, artificial limbs, bionics, and pacemakers. Genetic engineering falls into this area, as well. Agricultural Technology develops improved methods and products (fertilizers, irrigation systems, food preservation, weed and insect control) for producing plants and animals for food, fiber, and fuel.

- *Environmental Technology* creates tools to minimize the effect of technology on the development of living things. For example, hybrid vehicles and conservation waste management (like recycling) reduce our impact on the earth.

- *Production Technology* includes both Manufacturing and Construction. Manufacturing changes natural or synthetic materials into usable products (clothing, vehicles, food). Construction builds structures that protect us from the environment (houses, buildings) and an infrastructure to support our lives (bridges, roads, pipelines).

- *Information Technology* allows us to send messages, information, and data around the world or across the room! The Internet, television, and smart phones are all examples of information technology devices.

No matter which occupational area you're in, the selection of technology to support the work follows the same five basic guidelines:

1. *Why do we need this technology?*

   Determine exactly why you need the equipment, tool, or application. Are you replacing old technology? Will the technology improve productivity?

2. *Is the technology suitable in our workplace?*

   Evaluate the equipment, tools, and/or applications in terms of their appropriateness for your workplace. Will it be reliable and efficient? Does the new technology have to be compatible with technology that's already in use? Are there safety issues to consider?

3. *How much does the technology cost?*

   Is the technology cost-effective? Not only the initial cost, but the cost for maintenance and consumables (e.g., paper for a printer).

4. *How will we make sure the technology is used and maintained properly?*

   Are the operation and service manuals easily available? How will maintenance be handled? If maintenance is to be performed on-site, are there people available with the expertise needed? Will training have to be provided?

5. *Where will we get the technology?*

Have reputable sources for obtaining the equipment, tools, and/or applications been identified?

Once technology – equipment, tools, or an application – has been selected and installed, there is a need for routine maintenance. It can be challenging to assess the requirements for maintenance; but for all types of technology to be used safely and effectively, this challenge must be met. A proactive approach allows you to plan for times when certain technology will be out of service. A plan should be put in place to provide for things like:

- periodic replacement of parts or components,

- renewal of consumable supplies,

- repair or replacement of faulty components,

- periodic inspection and cleaning of equipment,

- updating or upgrading the technology,

- on-going monitoring of the condition and functionality of the equipment, tools, or application,

- contingency plans for any downtime during maintenance activities.

This list would have to be adjusted depending on the industry and the type of equipment, tools, or application; but the basic requirements are the same for any workplace. And the bottom line is that properly maintained technology is much safer for everyone!

Guidelines

Complete the *Impact of Technology* exercise.

Resources:

1. https://www.youtube.com/watch?v=mEkDcdwI29E
    7 Resources of Technology
    This video discusses the resources required to make "technology."

2. https://www.youtube.com/watch?v=A29AC2c_enc
    Technology and its Proper Role in Your Business
    This is a short video promoting an IT service provider, but the first half is informative.

3. https://www.youtube.com/watch?v=5rte0GqhEeM&t=3s
    What is technology?
    Gives several examples of what technology is and what it is not

4. https://www.youtube.com/watch?v=xI-_1Nu0Buc
    The Evolution of Technology | The Wonders of Technology and its Tools
    This video gives a short review of the evolution of technology through years.

5. https://www.youtube.com/watch?v=oWxMOOwTRhk
    Technology in Workplace

6. https://www.youtube.com/watch?v=LrhmHbDLM8o
    The 5 Trends Shaping the Future of Work
    Everything we know about the future of work is being shaped by five trends: globalization, mobility, changing demographics, new behaviors, and mobility. For the first time these five trends are coming together to force organizations to change the way they think about how work gets done. Is your organization ready for these five trends and for the future of work?

7. https://www.youtube.com/watch?v=Ukvd4adVcHw&t=5s
    How is technology changing our workplace culture?
    Charles Leadbeater, program advisor for the Peter Lougheed Leadership Institute, questions if advancements in technology are making us more productive or inefficient.

8. https://www.youtube.com/watch?v=8Gsy-d-6S8Y
    Areas of Technology
    Presentation to a class ... talks about class tests and class notes. Can skip first couple of minutes.

9. https://www.youtube.com/watch?v=YDP2_xOZewo
    What is technology?

10. https://www.youtube.com/watch?v=SX6Zeo7J6B8
    How to Choose the Right Technology for Growth
    Technology is all around us and can greatly help your business. But how do you know which technology to use?

Impact of Technology

For each of the areas listed, what are some of the positive and negative impacts of the technology? An example is provided for Agriculture.

(Note: Each of these areas is discussed in the Overview section.)

Area	Positive Impacts	Negative Impacts
1. Agriculture	*Example: Fertilizers can make plants more food per acre.*	*Example: Fertilizers can get into the ground water and pollute drinking water.*
2. Biotechnology		
3. Construction		
4. Environmental Technology		
5. Information Technology		
6. Manufacturing		

7. Transportation		