

Mechanical Devices-Grade 4 Science

Students will use Internet search skills to navigate the Internet and locate information on an invention. Jot notes will be used to gather required information, which will then be incorporated into a PowerPoint presentation that reflects the content of their report including some multimedia components such as graphics, sound, recorded voice or video clips. They will learn to keep track of their web travels in bibliographies. If time permits, students can also present their presentations to the class and will participate in a project evaluation. This project can be done in groups or as individuals depending on the scope of the assignment and the grade level.

The template includes some areas that can be covered. These can be altered to meet the needs of the students and project.

Science Outcomes

Explore and evaluate variations to the design of a mechanical device

Information and Communication Technology

Division 1 and 2

C1 Students will access, use and communicate information from a variety of technologies

- 1.1 access and retrieve appropriate information from electronic sources for a specific inquiry
- 1.2 process information from more than one source to retell what has been discovered.
- 2.1 access and retrieve appropriate information from the Internet by using a specific search path or from given uniform resource locations (URLs)
- 2.2 organize information gathered from the Internet, or an electronic sources, by selecting and recording the data in logical files or categories; and by communicating effectively, through appropriate forms, such as speeches, reports and multimedia presentations applying information technologies that serve a particular audiences and purposes.

C3 Students will critically access information accessed through the use of a variety of technologies.

- 1.1 compare and contrast information from similar types of electronic sources
- 2.1 identify and distinguish points of view expressed in electronic sources on a particular topic
- 2.2 recognize that information serves different purposes and that data from electronic sources may need to be verified to determine accuracy or relevance for the purpose used.

C4 Students will use organizational processes and tools to manage inquiry.

- 1.1 follow a plan to complete and inquiry
- 1.2 formulate new questions as research progresses
- 1.3 organize information from more than one source
- 2.1 design and follow a plan, including a schedule, to be used during an inquiry process, and make revisions to the plan as necessary
- 2.3 reflect on and describe the processes involved in completing a project

C5 Students will use technology to aid collaboration during inquiry

- 1.1 share information collected from electronic sources to add to a group task
- 2.1 retrieve data from available storage devices, such as a shared folder to which a group has contributed
- 2.2 record group brainstorming, planning and sharing of ideas by using technology

C6 Students will use technology to investigate and/or solve problems.

- 1.2 use technology to support and present conclusions

C7 Students will use electronic research techniques to construct personal knowledge and meaning.

- 1.2 summarize data by picking key words from gathered information by using jottings, point form or retelling
- 1.3 draw conclusions from organized information
- 1.4 make predictions based on organized information
- 2.1 use a variety of technologies to organize and synthesize researched information

2.2 use selected presentation tools to demonstrate connections among various pieces of information

F1 Students will demonstrate an understanding of the nature of technology

1.1 identify techniques and tools for communicating, storing, retrieving and selecting information

1.2 apply terminology appropriate to the technologies being used at this division level

1.3 demonstrate an understanding that the user manages and controls the outcomes of technology

2.1 apply terminology appropriate to the technologies being used at this division level

2.2 identify and apply techniques and tools for communicating, storing, retrieving and selecting information

2.3 explain the advantages and limitations of using computers to store, organize, retrieve and select information.

2.4 recognize the potential for human error when using technology

F2 Students will understand the role of technology as it applies to self, work and society

1.2 describe particular technologies being used for specific purposes.

F3 Students will demonstrate a moral and ethical approach to the use of technology

1.1 demonstrate courtesy and follow classroom procedures when making appropriate use of computer technologies

1.2 work collaboratively to share limited resources

1.3 demonstrate appropriate care of technology equipment

1.4 recognize and acknowledge the ownership of electronic material

2.1 comply with the acceptable use policy of the school and school authority for Internet and networked services, including software licensing agreements

2.2 work collaboratively to share limited resources

2.4 document sources obtained electronically, such as website address

2.5 respect the privacy and products of others

2.6 use electronic networks in an ethical manner

2.7 comply with copyright legislation

F4 Students will become discerning consumers of mass media and electronic information

1.1 compare similar types of information from two different electronic sources

2.1 recognize that graphics, video and sound enhance communication

2.2 describe how the use of various texts and graphics can alter perception

2.3 discuss how technology can be used to create special effects and/or to manipulate intent through the use of images and sound

F5 Students will practice the concepts of ergonomics and safety when using technology.

1.1 demonstrate proper posture when using a computer

1.2 demonstrate safe behaviours when using technology

2.1 demonstrate the application of ergonomics to promote personal health and well-being

2.2 identify and apply safety procedures required for the technology being used

F6 Students will demonstrate a basic understanding of the operating skills required in a variety of technologies.

1.1 perform basic computer operations, which may vary by environment, including powering up, inserting disks, moving the cursor, clicking on an icon, using pull-down menus, executing programs, saving files, retrieving files, printing, ejecting disks and powering down.

2.1 power up and power down various technologies and peripherals correctly

P1 Students will compose, revise and edit text.

1.1 create original text, using word processing software, to communicate and demonstrate understanding of forms and techniques

1.2 edit complete sentences, using such features of word processing as cut, copy and paste.

2.1 create and revise original text to communicate and demonstrate understanding of forms and techniques

2.2 edit and format text to clarify and enhance meaning using such word processing features as the thesaurus, find/change, text alignment, font size and font style

P2 Students will organize and manipulate data

1.1 read information from a prepared database

P3 Students will communicate through multimedia

- 1.1 access images, such as clip art, to support communication
- 1.2 access sound clips or recorded voice to support communication
- 2.1 create a multimedia presentation, incorporating such features as visual images (clip art, video clips), sounds (live recordings, sound clips) and animated images, appropriate to a variety of audiences and purposes

P4 Students will integrate various applications

- 1.1 integrate text and graphics to form a meaningful message
- 1.2 balance text and graphics for visual effect
- 2.2 vary font size and font style, and placement of text and graphics, in order to create a certain visual effect

P5 Students will navigate and create hyperlinked resources

- 1.1 navigate within a document, compact disc or other software program that contains links
- 1.2 access hyperlinked sites on an intranet or the Internet
- 2.2 navigate through a document that contains links to locate, copy and then paste data in a new file
- 2.3 navigate the Internet with appropriate software

Activity:

In the classroom the overall assignment will be discussed. The criteria for the research will be determined by the teacher and presented to the class. Students can prepare research questions based on the criteria in advance of visiting the Lab.

In the Lab students will use the Internet search skills using 2Learn as a starting place. They can use the tools in the 2Learn Back Pack. All information that they acquire will be saved for use in their written report. Any images that they wish to use in their report will be named appropriately and saved to the student's folder for later use. All graphics will require citations that will be included in the bibliography. Jot notes will be printed.
(2 sessions to gather information)

In the classroom students will add to their notes using print resources such as text books or library resources. Students will organize their notes in preparation of writing the written report.

In the Lab the students will learn how to create a written report using a template. They will learn how to incorporate graphics into a written composition using functions such as insert and copy and paste. They will learn how to cite graphic resources from different sources. (two lab sessions)
(2 sessions to compose report)

In the Lab the students will learn how to use PowerPoint to create a basic presentation that reflects the information in their report. They will collect graphics to support their topic to make the presentation meaningful.
(2 sessions)

Students will present their presentations to the class followed by an evaluation discussion in which all students will be asked to participate.