



Technology Education Pacing Guide 2018-2019

Technology Education Pacing Guide

Exploring Technology (6th Grade)

	Topic
Week 1	Class Procedures and Course Objectives
Week 2	Introduction to Technology <ul style="list-style-type: none">- Identify examples of technology, Demonstrate lab and tool safety, examine and demonstrate the problem solving process.
Week 3	Trade & Industrial Education <ul style="list-style-type: none">- Examine energy and electricity. Investigate and compare sources of energy and their transformation, Create open and closed circuits.
Week 4	Engineering and Making <ul style="list-style-type: none">- Examine engineering design process. Explore engineering careers. Complete engineering challenge.
Week 5	Manufacturing <ul style="list-style-type: none">- Examine manufacturing, create wooden project using engineering skills.
Week 6	Information technology <ul style="list-style-type: none">- Introduction to programming including basic language, practice pair programming, explore robot designs and behaviors, program and present robot.

Technology Education Pacing Guide

Discovering Technology (7th Grade)

	Topic
Week 1	Class Procedures and Course Objectives
Week 2	Introduction to Technology <ul style="list-style-type: none">- Identify examples of technology, Demonstrate lab and tool safety, examine and demonstrate the problem solving process, define five areas in which technology is used to solves problems. .
Week 3	Problem Solving <ul style="list-style-type: none">- Examine the problem solving process, apply the process to several problems, demonstrate use of process.
Week 4	Engineering Design Process <ul style="list-style-type: none">- Examine the engineering design process. Explore engineering and present findings on a field of engineering.
Week 5	Trade & Industrial Education <ul style="list-style-type: none">- Examine energy and electricity. Investigate and compare sources of energy and their transformation, Create open and closed circuits.
Week 6	Trade & Industrial Education <ul style="list-style-type: none">- Demonstrate how to create a battery, research, design, and build a working flashlight.
Week 7	Agriculture <ul style="list-style-type: none">- Discover agriculture and technology connections. Research importance of technology innovations and future of agriculture.
Week 8	Agriculture <ul style="list-style-type: none">- Select path of interest agriculture - livestock or crops. Examine field selected, investigate local uses, plan and carry out project.
Week 9	Agriculture <ul style="list-style-type: none">- Continue selected path, prepare plan, create, and carry out project. Present project through group exploration, plant/animal care, and continuous care.
Week 10	Architecture, Construction, and Manufacturing <ul style="list-style-type: none">- Examine architecture, construction, and manufacturing, research, explore, and demonstrate hand and power tool safety.
Week 11	Architecture, Construction, and Manufacturing <ul style="list-style-type: none">- Create and finalize project, test and modify designs as needed.
Week 12	Architecture, Construction, and Manufacturing <ul style="list-style-type: none">- Apply marketing strategies, demonstrate use of time through project planner, and

	present project to class.
Week 13	Information technology <ul style="list-style-type: none"> - Introduction to programming including basic language, practice pair programming, begin building game/story/robot.
Week 14	Information Technology <ul style="list-style-type: none"> - Create an idea and document through a storyboard, investigate and select method, develop project. Test, evaluate, and adjust as necessary.
Week 15	Information Technology <ul style="list-style-type: none"> - Finalize project, demonstrate use of time through project planner, and present project to class.
Week 16	Transportation, Distribution, & Logistics <ul style="list-style-type: none"> - Examine Transportation and technology innovations that contribute to the system. Select path of study ground, water, or flight.
Week 17	Transportation, Distribution, & Logistics <ul style="list-style-type: none"> - Examine specific transportation path needs, logistics, and ideas. Design personal project using CAD or similar systems, build project.
Week 18	Transportation, Distribution, & Logistics <ul style="list-style-type: none"> - Build transportation project, assess and adjust as needed, demonstrate use of time through project planner, and present project to class.

Technology Education Pacing Guide

Applying Technology (Exploring Computer Science) (8th Grade)

Unit 1: Human Computer Interaction

(4 Weeks)

Overview Chart

Human Computer Interaction Unit Overview	
Instructional Day	Topic
1-2	Explore the concepts of <i>computer</i> and <i>computing</i> .
3-4	“Demystify” and learn the function of the parts of a personal computer. Learn the terminology of hardware components necessary for the purchase of a home computer.
5-7	Explore the world wide web and search engines. Experiment with a variety of search techniques, internet resources, and Web 2.0, applications. Evaluate websites.
8-9	Examine the implications of data on society and how computers are used for communications.
10	Tell a story with data.
11-14	Explore how computers are used as a tool for visualizing data, modeling and design, and art in the context of culturally situated design tools.
15-16	Introduce the concept of a computer program as a set of instructions.
17-19	Explore the idea of intelligence—especially as it relates to computers. Explore what it means for a machine to “learn”. Discuss whether computers are intelligent or whether they only behave intelligently.

Unit 2: Problem Solving

(4 weeks)

Problem Solving Unit Overview	
Instructional Day	Topic
1-2	Introduce data collection and problem solving.
3	Introduce the four steps of the problem solving process.
4-6	Apply the problem solving process. Use different strategies to plan and carry out the plan to solve several problems.
7-9	Reinforce the four steps of the problems solving process.
10-12	Count in the binary number system. Convert between binary and decimal numbers in the context of topics that are important to computer science.
13-14	Introduce the linear and binary search algorithms.
15-16	Explore sorted and unsorted lists and various sorting algorithms.
17	Introduce minimal spanning trees and how graphs can be used to help solve problems.
18-21	Final projects and presentations

Unit 3: Web Design

(5 weeks)

Web Design Unit Overview	
Instructional Day	Topic
1-2	Explore issues of social responsibility in web use as well as the relative merits of the influence of the web on society, personal lives, and education.
3-4	Introduce the use of basic html.
5	Introduce basic formatting in html.
6-7	Explore image editing for the web using Photoshop or an image editor of choice.
8-10	Introduce basic css.
11-13	Explore the concept of separating style from structure by keeping separate html and css files.
14	Add hyperlinks to other websites.
15-16	Introduce a variety of page layout styles.
17-19	Practice the use of various design elements.
20-21	Introduce several different enhancements for website design, including web user interface elements combining Javascript, html, css, and Photoshop, accordion menus, lightbox and sliding images.
22-25	Final projects and gallery walk

Unit 4: Introduction to Programming

(6 weeks)

14	Introduce the concept of variable.
15	Introduce the concept of conditionals.
16-17	Introduce And, Or and randomness.
18	Apply knowledge of conditionals to develop a Rock Paper Scissors program in Scratch.
19	Build on previous programming concepts to create a timer.
20-23	Create a timing game in Scratch and present it to the class. Peer reviews are conducted.
24	Investigate two types of games that may provide ideas for the final project.
25	Explain final project and the rubric for the final project.
26-28	Write Scratch programs for either My Community or Game project. Conduct peer reviews.
29	Complete final projects.
30	Presentations of final projects

Introduction to Programming Unit Overview

Instructional Day	Topic
1	Introduce the Scratch programming language, including the basic terms utilized in the language.
2-3	Practice using the basic features of Scratch in the context of creating a simple program.
4	Create a dialogue between two sprites.
5-6	Introduce the methods of moving sprites in Scratch.
7-8	Practice the concept of event driven programming through the creation of an alphabet game.
9	Introduce the concept of broadcasting via role play.
10-13	Write Scratch stories and present them to the class. Conduct peer reviews.

Unit 5: Computing and Data Analysis

(6 weeks)

Computing and Data Analysis Unit Overview

Instructional Day	Topic
1-3	Review how data can be used for making a case/discovery. Explore pitfalls and challenges of putting together and managing large sets of data. Provide an overview of the final project.
4-5	Explore possible research questions for a selection of sample campaigns. Validate compelling stories with research data.
6-7	Assign groups. Discuss group roles and responsibilities. Choose campaigns and modes for data collection.
8	Data check-in—Discuss issues that arise (aggregating data, etc.).
9-12	Create maps using the latitude and longitude of a location and then create maps from a file of data.
13	Create maps with student data and related data set.
14-16	Discuss bar plots, categorical and continuous data, and mosaic plots as a vehicle for comparing categorical data, and looking at trends in data.
17	Create bar plots and mosaic plots with student data and related data set.
18-20	Review mean, median, minimum, maximum. Discuss various ways to
	subset data. Represent data with box plots and histograms.
21	Identify mean, median, minimum, maximum, create subsets, and create box plots and histograms with student data and related data set.
22-24	Use a variety of filters and queries to create subsets of text data. Create bar plots to graphically display the information.
25	Analyze text in student data and related data set.
26-27	Finalize data analysis for final project.
28-29	Develop website or Scratch program to present data analysis campaign.
30	Final project presentations

Unit 6: Robotics

(7 weeks)

Robotics Unit Overview	
Instructional Day	Topic
1	What is a robot? Identify the criteria that make an item a robot.
2-3	Evaluate robot body designs and create algorithms to control robot behavior.
4	Set up LEGO® Mindstorms® NXT® kit.
5	Build robot base.
6-7	Introduce the features of NXT Brick—the “brain” of the robot.
8-9	Introduce the features of the Mindstorms NXT software.
10-13	Program the robot using the Mindstorm Robot Educator Software tutorials.
14	Introduce RoboCup real life robotic competition and write instructions for tic-tac-toe.
15	RoboTic-Tac-Toe Tournament and introduction to RoboCupJunior Dance Challenge.
16-18	Build, program, and present a dancing robot.
19-23	Build program and present a rescue robot.
24-33	Final projects and presentations

