



# Park Hill School District

Building Successful Futures • Each Student • Every Day

## High School 6th Grade Computer Curriculum

**Course Description:** In this course, students will extend their working knowledge of computer skills, typing, and applications. Computers embeds 21st Century Skills within the curriculum to work on both hard and soft skills. Students will explore safety precautions online, applications that will enhance their efficiency and explore a project of their choice that culminates in a class presentation.

### Scope and Sequence:

Timeframe	Unit	Instructional Topics
5-6 Weeks	Digital Media	Topic 1: Photoshop Topic 2: Adobe/Newscast Topic 3: Presentation Design
1 Week	Internet Skills	Topic 1: Advanced Google Search Topic 2: Safety
1-2 Weeks	Programming	Topic 1: Excel Topic 2: Computer Programming
2 Weeks	Passion Project	Topic 1: Passion Project

## Unit 1: Digital Media

**Subject:** 6th Grade Computer Science

**Grade:** 6

**Name of Unit:** Digital Media

**Length of Unit:** 5-6 Weeks

**Overview of Unit:** Students will learn design skills in different types of digital media including photography, photo editing, presentation software, and video editing. Students will create culminating projects that demonstrate a fine tuning of these skills.

**Priority Standards for unit:**

- Create, format, and edit presentations. DESE.PRESENTATION.2
- Enhance presentations (e.g., sound, animation, graphics, transitions, and video). DESE.PRESENTATION.3
- Apply design and layout principles to presentations. DESE.PRESENTATION.4
- Deliver an oral presentation. DESE.PRESENTATION.5
- Recognize the different image types and their extensions (e.g., gif, jpg). DESE.WEBDESIGNIMAGES.1
- Use image editing program to create original raster images (e.g., collages, banners, buttons) DESE. WEBDESIGNIMAGES.3
- Use selection tools in image editing program (e.g., lasso, magic wand) DESE.WEBDESIGNIMAGES.4
- Use layering techniques in image editing program to better manage images (e.g., ordering, arranging, naming) DESE.WEBDESIGNIMAGES.5
- Use image editing program to adjust and transform images (e.g., crop, rotate, skew, color, image, dimension size) DESE.WEBDESIGNIMAGES.6
- Key at a predetermined level of speed and accuracy DESE.SHOWMESTANDARDS1.10 CA1

**Supporting Standards for unit:**

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Apply existing knowledge to generate new ideas, products, or processes.
  - Create original works as a means of personal or group expression.
  - Use models and simulations to explore complex systems and issues.
  - Identify trends and forecast possibilities.
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Plan and manage activities to develop a solution or complete a project.

- Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior (ISTE 5 - Digital Citizenship).
  - Exhibit leadership for digital citizenship.
- Students demonstrate a sound understanding of technology concepts, systems, and operations (ISTE 6 - Technology Operations and Concepts).
  - Understand and use technology systems.
  - Select and use applications effectively and productively.
  - Troubleshoot systems and applications.
  - Transfer current knowledge to learning of new technologies.

<b>Unwrapped Concepts (Students need to know)</b>	<b>Unwrapped Skills (Students need to be able to do)</b>	<b>Bloom's Taxonomy Levels</b>	<b>Webb's DOK</b>
presentations	Create, Format, Edit	Understand, Create	2, 3
presentations	Enhance	Apply	3
design and layout principles to presentations	Apply	Apply	3
an oral presentation	Deliver	Create	4
the different image types and their extensions	Recognize	Remember	1
images from various sources	Utilize	Analyze	1
image editing program to create original raster images	Use	Create	2
selection tools in image editing program	Use	Evaluate	2
layering techniques in image editing program to better manage images	Use	Apply	2
image editing program to adjust and transform images	Use	Evaluate, Create	4, 2

**Essential Questions:**

1. Why do we create digital media?
2. How do we know which digital media to use?
3. Why is it important to know the qualities of a good presentation?

**Enduring Understanding/Big Ideas:**

1. Students will understand the need for a creative way to present information for various audiences. Students will understand that presenting information in creative ways benefits them and sets them apart from others.
2. Students will recognize the audience’s needs and the best application to deliver information.
3. Students will understand the skills to actively engage an audience while incorporating visual supports.

**Unit Vocabulary:**

<b>Academic Cross-Curricular Words</b>	<b>Content/Domain Specific</b>
<ul style="list-style-type: none"><li>● Animation</li><li>● Posture</li><li>● Sources</li><li>● Storyboard</li><li>● Toolbars</li><li>● Transitions</li><li>● Voice</li></ul>	<ul style="list-style-type: none"><li>● Content-Aware</li><li>● End Point</li><li>● Layers</li><li>● Masks</li><li>● Non-Linear Presentation</li><li>● Render</li><li>● Saturation</li><li>● Selection Tools</li><li>● Split</li><li>● Start Point</li><li>● Trim</li></ul>

**Resources for Vocabulary Development: Quality Tools**

## Topic 1: Photoshop



### **Engaging Experience 1**

**Title:** Typing

**Suggested Length of Time:** 1 Day

**Standards Addressed**

*Priority:*

- Key at a predetermined level of speed and accuracy  
DESE.SHOWMESTANDARDS1.10 CA1

*Supporting:*

- Students demonstrate a sound understanding of technology concepts, systems, and operations (ISTE 6 - Technology Operations and Concepts).
  - Understand and use technology systems.

**Detailed Description/Instructions:** The first quarter of each semester, students will take a three minute typing test. The test will assess the student's speed and accuracy in typing. This activity is completed every Monday as bell work.

**Bloom's Levels:** Remember

**Webb's DOK:** 1

**Rubric:** 3.0 Standard Rubric:

Speed (words a minute)	Accuracy (percent of accuracy)
29	90
28	91
27	92
26	93
25	94
24	95
23	96
22	97
21	98
20	99
19	100



## **Engaging Experience 2**

**Title:** Introduction to Photoshop

**Suggested Length of Time:** 1 Day

### **Standards Addressed**

#### *Priority:*

- Use image editing program to adjust and transform images (e.g., crop, rotate, skew, color, image, dimension size) DESE.WEBDESIGNIMAGES.6

#### *Supporting:*

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Apply existing knowledge to generate new ideas, products, or processes.
  - Create original works as a means of personal or group expression.
  - Use models and simulations to explore complex systems and issues.
- Students demonstrate a sound understanding of technology concepts, systems, and operations (ISTE 6 - Technology Operations and Concepts).
  - Understand and use technology systems.
  - Select and use applications effectively and productively.
  - Troubleshoot systems and applications.
  - Transfer current knowledge to learning of new technologies.

**Detailed Description/Instructions:** Students will learn how to use many different tools, functions, and features of graphic design tools (i.e. Photoshop) through video tutorials. Each class will begin with a very quick look at common mistakes/problems that students are experiencing. The projects go from simple tasks to more complex tasks and show the students multiple ways to do things. Eventually the students will use several learned concepts together to edit photos.

**Bloom's Levels:** Create

**Webb's DOK:** 2

**Rubric:** Class participation



## **Engaging Experience 3**

**Title:** Photoshop

**Suggested Length of Time:** 5 Days

### **Standards Addressed**

#### *Priority:*

- Use image editing program to create original raster images (e.g., collages, banners, buttons) DESE.WEBDESIGNIMAGES.3
- Use selection tools in image editing program (e.g., lasso, magic wand) DESE.WEBDESIGNIMAGES.4
- Use layering techniques in image editing program to better manage images (e.g., ordering, arranging, naming) DESE.WEBDESIGNIMAGES.5
- Use image editing program to adjust and transform images (e.g., crop, rotate, skew, color, image, dimension size) DESE.WEBDESIGNIMAGES.6

#### *Supporting:*

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).

- Apply existing knowledge to generate new ideas, products, or processes.
- Create original works as a means of personal or group expression.
- Use models and simulations to explore complex systems and issues.
- Identify trends and forecast possibilities.
- Students demonstrate a sound understanding of technology concepts, systems, and operations (ISTE 6 - Technology Operations and Concepts).
  - Understand and use technology systems.
  - Select and use applications effectively and productively.
  - Troubleshoot systems and applications.
  - Transfer current knowledge to learning of new technologies.

**Detailed Description/Instructions:** Students will successfully complete 16 different Photoshop projects such as using the eraser, line tool, selection tool, magnetic lasso, and several others. Students looking to exceed expectations can work on a culminating project that includes multiple aspects of the above mentioned projects. This project may include creating a movie poster, face swapping, and many more advanced tutorials.

**Bloom's Levels:** Create, Evaluate

**Webb's DOK:** 2

**Rubric:** To be created



## Topic 2: Adobe/NewsCast

### **Engaging Experience 1**

**Title:** Creating a Movie Trailer/Commercial

**Suggested Length of Time:** 1 Day

**Standards Addressed**

*Priority:*

- Apply design and layout principles to presentations. DESE.PRESENTATION.4

*Supporting:*

- Students demonstrate a sound understanding of technology concepts, systems, and operations (ISTE 6 - Technology Operations and Concepts).
  - Understand and use technology systems.
  - Troubleshoot systems and applications.

**Detailed Description/Instructions:** The teacher discusses the many different aspects of creating a good commercial/movie trailer. The class will watch several examples of movie trailers/commercials and discuss things such as camera angles, sound, music, camera panning, script writing, and acting. The teacher will facilitate a class discussion regarding strong aspects of a trailer.

**Bloom's Levels:** Understand

**Webb's DOK:** 1

**Rubric:** Class participation

### **Engaging Experience 2**

**Title:** Storyboarding/Script Writing

**Suggested Length of Time:** 3 Days

**Standards Addressed**

*Priority:*

- Enhance presentations (e.g., sound, animation, graphics, transitions, and video). DESE.PRESENTATION.3
- Apply design and layout principles to presentations. DESE.PRESENTATION.4

*Supporting:*

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Apply existing knowledge to generate new ideas, products, or processes.
  - Create original works as a means of personal or group expression.
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats

**Detailed Description/Instructions:** Students will develop a script of their trailer that includes dialogue, camera angles, sound, camera panning, etc. Students will learn at their own pace through these different components of video editing software by utilizing video tutorials made by

the teacher. As students work, the teacher will recognize common concerns or issues that the class is having and do large group instruction.

**Bloom's Levels:** Create, Understand

**Webb's DOK:** 1, 3

**Rubric:** To be created



### **Engaging Experience 3**

**Title:** Video Editing

**Suggested Length of Time:** 8-9 Days

#### **Standards Addressed**

*Priority:*

- Create, format, and edit presentations. DESE.PRESENTATION.2
- Enhance presentations (e.g., sound, animation, graphics, transitions, and video). DESE.PRESENTATION.3
- Apply design and layout principles to presentations. DESE.PRESENTATION.4

*Supporting:*

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Apply existing knowledge to generate new ideas, products, or processes.
  - Create original works as a means of personal or group expression.5
  - Use models and simulations to explore complex systems and issues.
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Plan and manage activities to develop a solution or complete a project.
- Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior (ISTE 5 - Digital Citizenship).
  - Exhibit leadership for digital citizenship.
- Students demonstrate a sound understanding of technology concepts, systems, and operations (ISTE 6 - Technology Operations and Concepts).
  - Select and use applications effectively and productively.
  - Transfer current knowledge to learning of new technologies

**Detailed Description/Instructions:** Students will create their trailers. The trailers should incorporate all the aspects and components discussed throughout the unit and identified above. Ultimately, students are challenged to create a 60-90 second video that grabs their audience's attention and creates a desire to watch their "movie." The students can use any resource available to them at school and often times the teacher will encourage filming their trailer at home for setting, background and better options. Students will give feedback on the videos they watch. This could be done in large group discussion or any digital quality tool (i.e. GoogleForm

Plus/Delta). We will end the unit with a celebration day in which the class will watch the completed trailers/commercials.

**Bloom's Levels:** Create

**Webb's DOK:** 4

**Rubric:** To be created

## Topic 3: Presentation Design

### **Engaging Experience 1**

**Title:** Introduction to Digital Presentations

**Suggested Length of Time:** 1 Day

**Standards Addressed**

*Priority:*

- Enhance presentations (e.g., sound, animation, graphics, transitions, and video). DESE.PRESENTATION.3
- Apply design and layout principles to presentations. DESE.PRESENTATION.4
- Recognize the different image types and their extensions (e.g., gif, jpg). DESE.WEB DESIGNIMAGES.1

*Supporting:*

- N/A

**Detailed Description/Instructions:** The teacher will discuss aesthetic slide design and things to consider when putting together slides for presentations. We will discuss things that make a presentation good and a presentation bad through examples and role playing.

**Bloom's Levels:** Understand

**Webb's DOK:** 2

**Rubric:** Class participation



### **Engaging Experience 2**

**Title:** Creating and Presenting Presentation

**Suggested Length of Time:** 5 - 6 Days

**Standards Addressed**

*Priority:*

- Create, format, and edit presentations. DESE.PRESENTATION.2
- Enhance presentations (e.g., sound, animation, graphics, transitions, and video). DESE.PRESENTATION.3
- Apply design and layout principles to presentations. DESE.PRESENTATION.4
- Deliver an oral presentation. DESE.PRESENTATION.5

*Supporting:*

- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
  - Contribute to project teams to produce original works or solve problems.

**Detailed Description/Instructions:** Students will gather and organize information about a certain topic. This information will be organized in an aesthetically pleasing way with presentation software. Students will give an oral presentation using presentation software to assist them.

**Bloom's Levels:** Create, Apply; **Webb's DOK:** 3

**Rubric:** to be created






## Engaging Scenario



**Engaging Scenario** (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Students will give a 60-90 second oral presentation using presentation software of their choice. Presentation topics can include information about your birthday, a product you are trying to sell, or a persuasive issue of the student's choice. We will self-reflect as a group and review general areas where we all could have done better. We will discuss things we can do to improve future oral speaking presentations.

**Rubric for Engaging Scenario:** To be created

## Summary of Engaging Learning Experiences for Topics

Topic	Engaging Experience Title	Description	Suggested Length of Time
1	Typing 	The first quarter of each semester, students will take a three minute typing test. The test will assess the student's speed and accuracy in typing. This activity is completed every Monday as bell work.	1 Day
1	Introduction to Photoshop 	Students will learn how to use many different tools, functions, and features of graphic design tools (i.e. Photoshop) through video tutorials. Each class will begin with a very quick look at common mistakes/problems that students are experiencing. The projects go from simple tasks to more complex tasks and show the students multiple ways to do things. Eventually the students will use several learned concepts together to edit photos.	1 Day
1	Photoshop 	Students will successfully complete 16 different Photoshop projects such as using the eraser, line tool, selection tool, magnetic lasso, and several others. Students looking to exceed expectations can work on a culminating project that includes multiple aspects of the above mentioned projects. This project may include creating a movie poster, face swapping, and many more advanced tutorials.	5 Days
2	Creating a Movie Trailer/Commercial 	The teacher discusses the many different aspects of creating a good commercial/movie trailer. The class will watch several examples of movie trailers/commercials and discuss things such as camera angles, sound, music, camera panning, script writing, and acting. The teacher will facilitate a class discussion regarding strong aspects of a trailer.	1 Day
2	Storyboarding / Script Writing 	Students will develop a script of their trailer that includes dialogue, camera angles, sound, camera panning, etc. Students will learn at their own pace through these different components of video editing software by utilizing video tutorials made by the teacher. As students work, the teacher will	3 Days

		recognize common concerns or issues that the class is having and do large group instruction.	
2	<p>Video Editing</p> 	<p>Students will create their trailers. The trailers should incorporate all the aspects and components discussed throughout the unit and identified above. Ultimately, students are challenged to create a 60-90 second video that grabs their audience’s attention and creates a desire to watch their “movie.” The students can use any resource available to them at school and often times the teacher will encourage filming their trailer at home for setting, background and better options. Students will give feedback on the videos they watch. This could be done in large group discussion or any digital quality tool (i.e. GoogleForm Plus/Delta). We will end the unit with a celebration day in which the class will watch the completed trailers/commercials.</p>	8-9 Days
3	<p>Introduction to Digital Presentations</p>	<p>The teacher will discuss aesthetic slide design and things to consider when putting together slides for presentations. We will discuss things that make a presentation good and a presentation bad through examples and role playing.</p>	1 Day
3	<p>Creating and Presenting Presentation</p> 	<p>Students will gather and organize information about a certain topic. This information will be organized in an aesthetically pleasing way with presentation software. Students will give an oral presentation using presentation software to assist them.</p>	5 -6 Days

## Unit 2: Internet Skills

**Subject:** 6th Grade Computer Science

**Grade:** 6

**Name of Unit:** Internet Skills

**Length of Unit:** 1 Week

**Overview of Unit:** Students will review the process of a google advanced search and will be reminded of how beneficial these type of searches can be in various situations. Students will also be reminded of proper internet behavior and dangers that present themselves through social mediums and applications.

**Priority Standards for unit:**

- Discuss legal/ethical issues related to computers. DESE. Comp. Concepts 6
- Students apply digital tools to gather, evaluate, and use information. ISTE 3 - Research & Information Fluency
  - Plan strategies to guide inquiry
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
- Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior (ISTE 5 - Digital Citizenship).
  - Advocate and practice safe, legal, and responsible use of information and technology.
  - Exhibit leadership for digital citizenship.

**Supporting Standards for unit:**

- N/A



<b>Unwrapped Concepts (Students need to know)</b>	<b>Unwrapped Skills (Students need to be able to do)</b>	<b>Bloom's Taxonomy Levels</b>	<b>Webb's DOK</b>
legal/ethical issues related to computers	Discuss	Analyze	3
practice safe, legal, and responsible use of information and technology	Advocate	Understand	3
a positive attitude toward using technology that supports collaboration, learning, and productivity	Exhibit	Apply	1
personal responsibility for lifelong learning	Demonstrate	Apply	3
leadership for digital citizenship	Exhibit	Apply	3
strategies to guide inquiry	Plan	Apply	2
use information from a variety of sources and media	Locate, Organize, Analyze, Evaluate, Synthesize, Use	Evaluate	4
information sources and digital tools based on the appropriateness to specific tasks	Evaluate, Select	Evaluate	3
data and report results	Process	Analyze	3

**Essential Questions:**

1. Why do we need to be safe online?
2. How do we safeguard our online persona?
3. How does Advanced Searching improve our efficiency?

**Enduring Understanding/Big Ideas:**

1. Students will learn to protect themselves and their identity from predators by going over real life examples using class discussion format.
2. Students will recognize the implications of choices that can affect their extracurricular options as well as their post-secondary school and career paths.
3. Student will learn to narrow down the results of a search to improve accuracy and quality.

**Unit Vocabulary:**

<b>Academic Cross-Curricular Words</b>	<b>Content/Domain Specific</b>
<ul style="list-style-type: none"><li>● Cyber Bullying</li><li>● Identity Theft</li><li>● Predators</li></ul>	<ul style="list-style-type: none"><li>● Advanced Search</li><li>● Career Path</li><li>● Online Persona</li></ul>

**Resources for Vocabulary Development:** Quality Tools

## Topic 1: Advanced Google Search



### **Engaging Experience 1**

**Title:** Advanced Google Search

**Suggested Length of Time:** 1 Day

**Standards Addressed**

*Priority:*

- Students apply digital tools to gather, evaluate, and use information. ISTE 3 - Research & Information Fluency
  - Plan strategies to guide inquiry
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks

*Supporting:*

- N/A

**Detailed Description/Instructions:** Students and the teacher will review the process and reasoning as to why a google advanced search can be beneficial for them through role modeling and class discussion.

**Bloom's Levels:** Apply, Evaluate

**Webb's DOK:** 2, 3

**Rubric:** Class participation

## Topic 2: Safety



### **Engaging Experience 1**

**Title:** Internet Safety

**Suggested Length of Time:** 2 Days

**Standards Addressed**

*Priority:*

- Discuss legal/ethical issues related to computers. DESE. Comp. Concepts 6
- Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior (ISTE 5 - Digital Citizenship).
  - Advocate and practice safe, legal, and responsible use of information and technology.
  - Exhibit leadership for digital citizenship.

*Supporting:*

- N/A

**Detailed Description/Instructions:** Students and the teacher will have a discussion about the many different social mediums they use and how to be safe with them. The teacher will facilitate a discussion about students' digital footprints and how mistakes made on social media could be life changing.

**Bloom's Levels:** Analyze

**Webb's DOK:** 3

**Rubric:** Class participation

## Engaging Scenario

**Engaging Scenario** (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

### The Debate



Students will be given a debatable real life scenario and will need to take a side. They will research and formulate their arguments for a classroom debate. Students will engage in a classroom debate regarding a consequence from using social media. This activity will help the students to see that there are two sides and multiple views to certain situations. It will also help students understand that sometimes the resulting punishments/consequences handed out don't always seem fair. Hopefully it will show students that things that currently seem insignificant can catch up with them and have a big impact on their lives.

The classroom will be split into four different groups based on certain beliefs or opinions they have demonstrated about social media and consequences dealt out due to poor social media use. Half of the class will debate situation one while the other half of the class will debate situation two. The students will be given a day to formulate an argument to defend their belief. The day of the debate, the teacher could get a teacher or two to come to class and listen to the arguments (the judge).

Students will have five minutes to get organized when class starts. Then each side will have 2-3 minutes for an opening statement. After this, each side will be allowed to 2-3 minutes in which they can ask the other side to answer a few questions. We will then end with a one minute closing statement. The guest teacher will give his verdict and the teacher will tally an anonymous poll of the students not participating in the debate. When this is done, the second debate will take place and we will repeat the process. When it's all said and done, the teacher will fill the students in on what actually happened in the real life situation.

**Rubric for Engaging Scenario:** To be created

## Summary of Engaging Learning Experiences for Topics

Topic	Engaging Experience Title	Description	Suggested Length of Time
1	Advanced Google Search 	Students and the teacher will review the process and reasoning as to why a google advanced search can be beneficial for them through role modeling and class discussion.	1 Day
2	Internet Safety 	Students and the teacher will have a discussion about the many different social mediums they use and how to be safe with them. The teacher will facilitate a discussion about students' digital footprints and how mistakes made on social media could be life changing.	2 Days

## Unit 3: Programming

**Subject:** 6th Grade Computer Science

**Grade:** 6

**Name of Unit:** Programming

**Length of Unit:** 1-2 Weeks

**Overview of Unit:** Students will be introduced to using spreadsheets and basic spreadsheet formulas that can help improve efficiency when working with different types of data. Students will also be introduced to beginner level coding languages through Khan Academy such as JavaScript and HTML.

**Priority Standards for unit:**

- Describe error catching/handling. DESE.ADLPROGCONCEPTS.4
- Create, design, and edit spreadsheets. DESE.SPREADSHEET.2
- Use basic functions/formulas (e.g., auto sum, average, IF). DESE.SPREADSHEET.6
- Create, format, and edit charts and graphs. DESE.SPREADSHEET.6
- Practice programming for efficiency DESE.ADLPROGCONCEPTS. 9

**Supporting Standards for unit:**

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Use models and simulations to explore complex systems and issues.
  - Identify trends and forecast possibilities.
- Students demonstrate a sound understanding of technology concepts, systems, and operations (ISTE 6 - Technology Operations and Concepts).
  - Understand and use technology systems.
  - Transfer current knowledge to learning of new technologies.

<b>Unwrapped Concepts (Students need to know)</b>	<b>Unwrapped Skills (Students need to be able to do)</b>	<b>Bloom's Taxonomy Levels</b>	<b>Webb's DOK</b>
error catching/handling	Describe	Understand	1
spreadsheets	Create, Design, Edit	Create	2
basic functions/formulas	Use	Understand	1
charts and graphs	Create, Format, Edit	Analyze	1
programming for efficiency	Practice	Create	2



**Essential Questions:**

1. How do spreadsheets make us more efficient?
2. How does learning to program teach logic and reasoning?
3. What possibilities can coding open up for students?

**Enduring Understanding/Big Ideas:**

1. Students will learn to use the basic functions of spreadsheets to organize, analyze and present results. This helps efficiency by showing students quick ways to sort and analyze data.
2. Students will use the skills in programming to resolve issues in an orderly and rational manner.
3. Students will learn workforce essential skills such as analyzing errors and apply thinking skills while attempt to resolve an issue in another way.

**Unit Vocabulary:**

Academic Cross-Curricular Words	Content/Domain Specific
<ul style="list-style-type: none"><li>● Average</li><li>● Chart</li><li>● Function</li><li>● Sum</li></ul>	<ul style="list-style-type: none"><li>● Cells</li><li>● Column</li><li>● Fill</li><li>● Formula</li><li>● Hexadecimal</li><li>● HTML</li><li>● JAVA</li><li>● Row</li><li>● Sort</li><li>● Spreadsheet</li><li>● Syntax</li><li>● Tags</li></ul>

**Resources for Vocabulary Development:** Quality Tools

## Topic 1: Excel



### **Engaging Experience 1**

**Title:** M&M's and Excel

**Suggested Length of Time:** 2 Days

**Standards Addressed**

*Priority:*

- Create, design, and edit spreadsheets. DESE.SPREADSHEET.2
- Use basic functions/formulas (e.g., auto sum, average, IF). DESE.SPREADSHEET.6
- Create, format, and edit charts and graphs. DESE.SPREADSHEET.6

*Supporting:*

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Identify trends and forecast possibilities.

**Detailed Description/Instructions:** In the M&M assignment, students will receive one package of fun size M&M candies. Students will count those candies as well as separate them into colors. These numbers will be transferred into an Excel document with labels for each color and the number that is connected to it. At that time, students will also learn the auto sum formula to calculate how many candies were in the entire package. Students will select the information and learn how to graph the data in a pie chart and customize the colors of the chart so that it correlates to the colors of the candies. After this is complete, students will be shown how to go back into the graph data and change the colors into images from the internet to represent each color of candy.

**Bloom's Levels:** Create, Analyze

**Webb's DOK:** 1, 2

**Rubric:** To be created



### **Engaging Experience 2**

**Title:** Party Time

**Suggested Length of Time:** 2 Days

**Standards Addressed**

*Priority:*

- Create, design, and edit spreadsheets. DESE.SPREADSHEET.2
- Use basic functions/formulas (e.g., auto sum, average, IF). DESE.SPREADSHEET.6
- Create, format, and edit charts and graphs. DESE.SPREADSHEET.6

*Supporting:*

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Identify trends and forecast possibilities.

**Detailed Description/Instructions:** In the Party Time activity, students are given a set amount of money to spend on a party for their friends. They will, first, select objects for their party off of a list of party items. They must be careful to calculate how much each individual item cost as

some items are presented as 3 for \$2.00, etc. Once they have their list, they must input them into Excel with columns showing what the products is, how much it costs, and how many of the item they are purchasing. The last area of each row will show a total for what that item cost multiplied by how many they want to purchase. The last step of the process is showing students how to create a running balance much like they would in personal finance account to deduct from a bank account. One added challenge will be challenging students to make the final amount equal to exactly zero, meaning they used the most amount of their budget without going over.

**Bloom's Levels:** Create, Analyze

**Webb's DOK:** 1, 2

**Rubric:** To be created

## Topic 2: Computer Programming



### **Engaging Experience 1**

**Title:** Khan Academy Coding

**Suggested Length of Time:** 5 Days

**Standards Addressed**

*Priority:*

- Describe error catching/handling. DESE.ADLPROGCONCEPTS.4
- Practice programming for efficiency DESE.ADLPROGCONCEPTS. 9

*Supporting:*

- Students demonstrate a sound understanding of technology concepts, systems, and operations (ISTE 6 - Technology Operations and Concepts).
  - Understand and use technology systems.
  - Transfer current knowledge to learning of new technologies.

**Detailed Description/Instructions:** Students will be shown [khanacademy.org](http://khanacademy.org) and will be free to explore learning different languages of coding such as Java Script, HTML, SQL, and several advanced sections of these same languages. Each section of coding walks the students through basic coding languages and gradually build upon one another. There are section breaks where students are allowed to “free code” and be creative with the coding languages they have learned.

**Bloom’s Levels:** Understand, Create

**Webb’s DOK:** 1, 2

**Rubric:** Students are graded on completion



## Engaging Scenario


**Engaging Scenario** (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Students will partner with another student that explored the same programming language as them. They are to teach their partner one new aspect or explain to them what they learned. The teacher will facilitate a class discussion about the similarities and differences within the programming languages.

**Rubric for Engaging Scenario:** Class participation

## Summary of Engaging Learning Experiences for Topics

Topic	Engaging Experience Title	Description	Suggested Length of Time
1	M&M's and Excel 	In the M&M assignment, students will receive one package of fun size M&M candies. Students will count those candies as well as separate them into colors. These numbers will be transferred into an Excel document with labels for each color and the number that is connected to it. At that time, students will also learn the auto sum formula to calculate how many candies were in the entire package. Students will select the information and learn how to graph the data in a pie chart and customize the colors of the chart so that it correlates to the colors of the candies. After this is complete, students will be shown how to go back into the graph data and change the colors into images from the internet to represent each color of candy.	2 Days
1	Party Time 	In the Party Time activity, students are given a set amount of money to spend on a party for their friends. They will, first, select objects for their party off of a list of party items. They must be careful to calculate how much each individual item cost as some items are presented as 3 for \$2.00, etc. Once they have their list, they must input them into Excel with columns showing what the products is, how much it costs, and how many of the item they are purchasing. The last area of each row will show a total for what that item cost multiplied by how many they want to purchase. The last step of the process is showing students how to create a running balance much like they would in personal finance account to deduct from a bank account. One added challenge will be challenging students to make the final amount equal to exactly zero, meaning they used the most amount of their budget without going over.	2 Days
2	Khan Academy Coding	Students will be shown <a href="http://khanacademy.org">khanacademy.org</a> and will be free to explore learning different languages of	5 Days

		coding such as Java Script, HTML, SQL, and several advanced sections of these same languages. Each section of coding walks the students through basic coding languages and gradually build upon one another. There are section breaks where students are allowed to “free code” and be creative with the coding languages they have learned.	
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## Unit 4: Passion Project

**Subject:** 6th Grade Computer Science

**Grade:** 6

**Name of Unit:** Passion Project

**Length of Unit:** 2 Weeks

**Overview of Unit:** Students will get the opportunity to explore and investigate personal interests. Students are encouraged to be active learners and be responsible for their own learning. Students will journal about their learning experience and document their failures as well as successes.

**Priority Standards for unit:**

- Demonstrate ability to research and analyze information from various sources (i.e. written, digital) for use in written or oral presentation  
DESE.MultimediaCommunication.6
- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Apply existing knowledge to generate new ideas, products, or processes.
  - Create original works as a means of personal or group expression.
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
  - Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.
- Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior (ISTE 5 - Digital Citizenship).
  - Advocate and practice safe, legal, and responsible use of information and technology.
  - Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
  - Demonstrate personal responsibility for lifelong learning.
  - Exhibit leadership for digital citizenship.

**Supporting Standards for unit:**

- N/A



<b>Unwrapped Concepts (Students need to know)</b>	<b>Unwrapped Skills (Students need to be able to do)</b>	<b>Bloom's Taxonomy Levels</b>	<b>Webb's DOK</b>
ability to research and analyze information from various sources	Demonstrate	Evaluate	3
existing knowledge to generate new ideas, products, or processes	Apply	Apply	3
original works as a means of personal or group expression	Create	Create	2
with peers, experts, or others employing a variety of digital environments and media	Interact, Collaborate, Publish	Analyze	2
information from a variety of sources and media	Locate, Organize, Analyze, Evaluate, Synthesize, Use	Analyze	2
information sources and digital tools based on the appropriateness to specific tasks	Evaluate, Select	Evaluate	3
authentic problems and significant questions for investigation	Identify, Define	Create	2
activities to develop a solution or complete a project	Plan, Manage	Create	3
safe, legal, and responsible use of information and technology	Advocate, Practice	Remember	1
a positive attitude toward using technology that supports collaboration, learning, and productivity	Exhibit	Apply	1
personal responsibility for lifelong learning	Demonstrate	Apply	1
leadership for digital citizenship	Exhibit	Apply	1

**Essential Questions:**

1. Why is it important to explore interests and goals?
2. How do we discern what interests are worth pursuing?
3. How will this project help you in your future?

**Enduring Understanding/Big Ideas:**

1. Students will further explore interests to expand personal enrichment and investigate possible career options. This is important because students don't often get the opportunity to carve out time and focus on their futures.
2. Students will grow to understand the likes and dislikes of the options and determine if they want to continue learning about the topic. Students will do this through journal reflections.
3. Students will decide if a project is worthy of further investigation and develop presentation skills.

**Unit Vocabulary:**

<b>Academic Cross-Curricular Words</b>	<b>Content/Domain Specific</b>
<ul style="list-style-type: none"><li>● Digital Media</li><li>● Journal</li><li>● Presentation</li><li>● Spreadsheet</li><li>● Storyboard</li></ul>	<ul style="list-style-type: none"><li>● Programming</li></ul>

**Resources for Vocabulary Development: Quality Tools**

## Topic 1: Passion Project



### Engaging Experience 1

**Title:** Passion Project Journal

**Suggested Length of Time:** Ongoing

**Standards Addressed**

*Priority:*

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Apply existing knowledge to generate new ideas, products, or processes.
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.

*Supporting:*

- N/A

**Detailed Description/Instructions:** Students will keep a detailed journal on their learning experiences as they navigate through their passion project. Entries should include a summary of their day and their thoughts, the troubles or problems they encountered, their failures as well as their successes and questions they currently have or are trying to answer.

**Bloom's Levels:** Evaluate, Apply, Analyze

**Webb's DOK:** 2, 3

**Rubric:** To be created



### Engaging Experience 2

**Title:** Passion Project

**Suggested Length of Time:** 10 Days

**Standards Addressed**

*Priority*

- Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology (ISTE 1 - Creativity and Innovation).
  - Apply existing knowledge to generate new ideas, products, or processes.
  - Create original works as a means of personal or group expression.
- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
- Students apply digital tools to gather, evaluate, and use information (ISTE 3 - Research and Information Fluency).
  - Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.

- Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources (ISTE 4 - Critical Thinking, Problem Solving, and Decision Making).
  - Identify and define authentic problems and significant questions for investigation.
  - Plan and manage activities to develop a solution or complete a project.
- Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior (ISTE 5 - Digital Citizenship).
  - Advocate and practice safe, legal, and responsible use of information and technology.
  - Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
  - Demonstrate personal responsibility for lifelong learning.
  - Exhibit leadership for digital citizenship.

*Supporting:*

- N/A

**Detailed Description/Instructions:** Students will pursue something they are passionate about and look to create something either tangible or digital. The teacher will facilitate this by showing student's previous students' passion projects as well as brainstorming a list of possible ideas of things to create.

**Bloom's Levels:** Apply, Evaluate, Create

**Webb's DOK:** 3

**Rubric:** This project is not graded

### **Engaging Experience 3**

**Title:** Presentation Day

**Suggested Length of Time:** 1 Day

**Standards Addressed**

*Priority:*

- Demonstrate ability to research and analyze information from various sources (i.e. written, digital) for use in written or oral presentation  
DESE.MultimediaCommunication.6

*Supporting:*

- Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others (ISTE 2 - Communication and Collaboration).
  - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
  - Communicate information and ideas effectively to multiple audiences using a variety of media and formats.

**Detailed Description/Instructions:** Students will share/present their passion project with the class. Students should reflect back on their first presentation and make a concerted effort to improve their areas of improvement. Presentations should include a summary of their learning journal experiences as well as some sort of finished project to share with the class.

**Bloom's Levels:** Analyze; **Webb's DOK:** 2

**Rubric:** To be created




## Engaging Scenario

**Engaging Scenario** (An Engaging Scenario is a culminating activity that includes the following components: situation, challenge, specific roles, audience, product or performance.)

Students will share/present their passion project with the class. Students should reflect back on their first presentation and make a concerted effort to improve their areas of improvement. Presentations should include a summary of their learning journal experiences as well as some sort of finished project to share with the class.

**Rubric for Engaging Scenario:** Reflection between first oral presentation and this presentation

## Summary of Engaging Learning Experiences for Topics

Topic	Engaging Experience Title	Description	Suggested Length of Time
1	Passion Project Journal 	Students will keep a detailed journal on their learning experiences as they navigate through their passion project. Entries should include a summary of their day and their thoughts, the troubles or problems they encountered, their failures as well as their successes and questions they currently have or are trying to answer.	Ongoing
1	Passion Project 	Students will pursue something they are passionate about and look to create something either tangible or digital. The teacher will facilitate this by showing student's previous students' passion projects as well as brainstorming a list of possible ideas of things to create.	10 Days
1	Presentation Day 	Students will share/present their passion project with the class. Students should reflect back on their first presentation and make a concerted effort to improve their areas of improvement. Presentations should include a summary of their learning journal experiences as well as some sort of finished project to share with the class.	1 Day

# Unit of Study Terminology

**Appendices:** All Appendices and supporting material can be found in this course's shell course in the District's Learning Management System.

**Assessment Leveling Guide:** A tool to use when writing assessments in order to maintain the appropriate level of rigor that matches the standard.

**Big Ideas/Enduring Understandings:** Foundational understandings teachers want students to be able to discover and state in their own words by the end of the unit of study. These are answers to the essential questions.

**Engaging Experience:** Each topic is broken into a list of engaging experiences for students. These experiences are aligned to priority and supporting standards, thus stating what students should be able to do. An example of an engaging experience is provided in the description, but a teacher has the autonomy to substitute one of their own that aligns to the level of rigor stated in the standards.

**Engaging Scenario:** This is a culminating activity in which students are given a role, situation, challenge, audience, and a product or performance is specified. Each unit contains an example of an engaging scenario, but a teacher has the ability to substitute with the same intent in mind.

**Essential Questions:** Engaging, open-ended questions that teachers can use to engage students in the learning.

**Priority Standards:** What every student should know and be able to do. These were chosen because of their necessity for success in the next course, the state assessment, and life.

**Supporting Standards:** Additional standards that support the learning within the unit.

**Topic:** These are the main teaching points for the unit. Units can have anywhere from one topic to many, depending on the depth of the unit.

**Unit of Study:** Series of learning experiences/related assessments based on designated priority standards and related supporting standards.

**Unit Vocabulary:** Words students will encounter within the unit that are essential to understanding. Academic Cross-Curricular words (also called Tier 2 words) are those that can be found in multiple content areas, not just this one. Content/Domain Specific vocabulary words are those found specifically within the content.

## **Symbols:**



This symbol depicts an experience that can be used to assess a student's 21st Century Skills using the rubric provided by the district.



This symbol depicts an experience that integrates professional skills, the development of professional communication, and/or the use of professional mentorships in authentic classroom learning activities.