Computer Lab Curriculum Guidelines
Blacksburg New School
Grades 3-8

Typing:
Starting in 3rd Grade (Green Room) students begin regular typing practice and continue throughout elementary school. By the end of 8th grade, it is expected that students will be able to touch-type at least 35 words per minute. Students review proper techniques for typing before establishing their own individual goal for what they feel they should focus on. These goals might include increasing their typing speed, accuracy, working on problem keys, or focusing on their posture and hand position/using both hands.

Online Safety and Digital Citizenship:
Blacksburg New School uses the [Common Sense Media curriculum](#) for teaching online safety and digital citizenship. Students explore what information may be okay to share and what should be kept private when online. Each year, time is spent discussing how what they do online is permanent and what it means to have a digital footprint. Additionally, students learn to recognize cyberbullying and discuss what can be done if something someone's doing is making them uncomfortable. Other topics, such as finding a good media balance, creating secure passwords, and the influence of digital media, are also discussed at the appropriate age levels.

Google Drive:
Blacksburg New School uses primarily the Google Suite for schoolwork and student emails. Students gain access to their account in 3rd grade (Green Room) to use Google Drive. Once students reach middle school (Purple Room), they are given access to an email account.

All Programs:
Students will learn to:
- Identify difference between Slides, Docs, and Sheets and appropriate time to use each
- Format text using the bold, italics, and underline tools
- Change their font and font size
- Highlight prewritten text in order to format it without having to delete and rewrite it
- Use shortcuts to copy, paste, and undo
- Make copies of existing files shared from teachers
- Give files appropriate names to stay organized
- Share files with others and learn about different permissions they can grant (editor, viewer, commenter)
- Create new folders to organize their files
- Download files from Drive
- Print files

Google Docs:
Students will learn to:
- Adjust line spacing and margin sizes
- Align text
- Add an additional page to their document using the break tool or shortcut
- Use bullet points or a number list
- Add links to a document

Google Slides:
Students will learn to:
- Add a theme to their slideshow
- Add slides and change the layouts
- Add textboxes
- Use transitions or animations when appropriate

- Add pictures from the computer or from the internet
- Crop or adjust the size of pictures
- Create shapes
- Change the background color of a slide
- Use the "Edit Theme" menu to modify a theme template

Additionally, students will discuss "rules" for creating a slideshow, such as:
- Using colors for fonts and backgrounds that are easy to read
- Adjusting the font size so it's big and clear
- Keeping their information concise on their slides
- Making use of pictures to enhance their presentation

Google Sheets:
Students will learn to:
- Find and name cells
- Add information to cells
- Format cells to be money, numbers, percentages, or text
- Format cells using the text wrapping and text rotation tools
- Adjust row and column sizes
- Use the built in functions to automatically add, subtract, and multiply numbers on a sheet
- Use the built in functions to find the mode, median, and mean of a data set
- Enter data they have gathered to create a table
- Graph data using Sheets
- Format graphs to have proper titles, colors, keys, and axis labels

Google Drawings:
Students will learn to:
- Use Drawings to create simple flyers or handouts
- Draw shapes and lines
- Add pictures from the computer or from the internet
- Crop or adjust the size of images
- Add or change colors
- Create Word Art

Coding/Programming:
Students begin learning to code in 3rd grade (Green Room) by completing "unplugged" activities that challenge them to get in the mindset of a computer or robot. The first programming language introduced is a drag-and-drop based language with students having opportunities to learn additional languages, such as Python, as they progress. Students complete various "Hour of Code" challenges to learn about different uses of coding in the real world. Additional opportunities for students to learn other forms of programming, such as website or game design, robotics, and other electronics programming are regularly offered and encouraged.

3rd-5th Elementary Technology Curriculum:

3rd Grade (Green Room):
- Students explore the basic components of a computer and how they think.
- Students define "What is technology?".
- Students discuss how throughout history we have created tools to solve problems.
- Students begin learning to code using a drag-and-drop language.
- Students are introduced to the different fields of technology.

4th Grade (Turquoise Room):
- Students explore what an engineer is and how they work to solve problems.
- Students practice identifying and defining a problem before designing a solution.

- Students examine how technology can have positive and/or negative effects on society and the environment.
- Students research how and why technologies are invented and how they change over time.
- Students identify reliable sources when searching for information online.
- Students begin learning to 3D model.

5th Grade (Blue Room):
- Students learn that the engineering design process involves defining a problem, generating ideas, selecting a solution, testing the solution(s), making the item, evaluating it, and presenting the results.
- Students brainstorm and design solutions to presented problems based on real world scenarios.
- Students discuss how the requirements for a design are made up of criteria and constraints.
- Students examine the differences between man-made and natural materials, as well as what it means for something to be designed to be durable.
- Students demonstrate how drawing sketches and building models or prototypes can help communicate their ideas.

6th-8th Middle School Technology Curriculum:

6th Grade:
- Students explore the seven different fields of technology as described in the STLs: medical, agricultural and biotechnologies, energy and power, information and communication, transportation, manufacturing, and construction.
- Students learn how to approach and think through problems based on real world scenarios.
- Students are introduced to the engineering design process utilizing it to complete a series of small engineering and/or technology projects under one of the fields of technology.
- Students demonstrate the basics of completing technical drawings and 3D modeling to design a technological solution.
- Students explore technology and engineering related careers.

7th Grade:
- Students develop problem solving skills by brainstorming solutions to real world scenarios.
- Students demonstrate the ability to use a design process to assess a problem and design a solution.
- Students evaluate how technological systems can be improved and evolve over time.
- By examining global engineering challenges, students explore the impact of technology in society.
- Students explore copyright and trademark laws, including Fair Use, evaluating their impacts on technology and modern society.

8th Grade:
- Students continue to develop their ability to problem solve and use a design process while working to address open-ended problems.
- Students analyze the relationship between technology and society by discussing current events.
- Students examine how different fields of study work together towards a common goal.
- Students investigate using electronic and microcontroller systems.
- Students are presented opportunities to further explore different areas of technology and its uses based on their interest. These opportunities might include working in animation, game design, robotics, and video editing, as well as areas of engineering.