

COMPUTER

(Last updated 12/2020)

State Fair Entries: One per division

References: BU-160Y Fundamentals Level 1 (grades 3-5)
BU-1801Y Fundamentals Level 2 (grades 6-8)
BU-1802 Recursion Level 3 (grades 9-12)

Find these books
for **FREE** at the
Extension Office!

NOTE: While youth are encouraged to develop programs that can be published either on the web or via CD, publishing the program is NOT a requirement or an expectation. The exhibit topics provide ideas/suggestions for exhibits. Other exhibit topics are acceptable as long as they are comparable in knowledge and skill.

There are three exhibit grade level divisions; Grades 3-5, Beginner; Grades 6-8, Intermediate; and Grades 9-12, Advanced. Exhibits are to be skill appropriate for the member's grade level.

Youth enrolled in the computer project will select one of the below subject categories to study, regardless of grade. Youth may choose to create an exhibit demonstrating skills learned during the year. Check with your county Purdue Extension Office to determine if a computer will be available during judging and if there will be an opportunity to explain your exhibit to the judge. Exhibits qualifying for state fair are to be submitted on a thumb drive securely attached to a notebook/portfolio describing accomplishments, skills learned, design ideas, budget, a summary of what was done, screenshots showing the development and final project, etc. as the exhibitor will not be able to discuss their work with a judge. Poster exhibits are 22" x 28" or freestanding 3-dimensional display boards no larger than 36" x 36" may be submitted. Youth may continue in the same subject category in subsequent years expand on the previous year's topic, or choose a new topic. Subject categories are:

Block Based Programming	Text Based Programming
Web Design and Computer Entrepreneurship	Computer Forensics
Hardware and Networking Design/Install/Repair	Graphic Design and Computer Art

Software submitted to be reviewed by a judge must be compatible on both PC and Mac platform. If additional software other than Microsoft Office Suite is required to view the member's work, that software must be provided by the member and comply with all manufacturer copyright laws. Apps can be Android or IOS compatible.

All notebooks/portfolios must include a reference list indicating where information was obtained, giving credit to the original author, to complete the 4-H member's exhibit. This reference list should/might include web site links, people and professionals interviewed, books, magazines, etc. It is recommended this reference list be the last page of a notebook or included as part of the display visible to the public. A judge is not to discredit an exhibit for the manner in which references are listed.

Blocked Based Programming:

Beginner (Grades 3-5) – Create a block based program using Scratch, Code Studio, Alice, or another graphic programming language of your choice. You should comment your work and it must include at least ten different commands. Skills this program could use are:

Sequence	Iteration
Conditionals	Variables
Loops	User input
Any other similar skill	

Intermediate Grades 6-8 – Create a block-based program using Scratch, Code Studio, Alice, or another graphic programming language of your choice. You should comment your work and it must include at least ten different commands. Skills this program could use are:

More robust demonstration of beginner skills	Modularization
Lists	Any other similar skill

Advanced Grades 9-12 – Create a block-based program using Scratch, Code Studio, Alice, or another graphic programming language of your choice. You should comment your work and it must include at least ten different commands. Skills this program could use are:

More robust demonstration of Intermediate Skills	Parameters
Recursion	Any other similar skill

Text Based Programming

Beginner Grades 3-5 – This option is not available.

Intermediate Grades 6-8 - Create a text-based program of your choosing using any text based language you are comfortable in. The code should demonstrate an understanding of at least 4 of these skills:

Commenting	Correct syntax
Variables	Loops
Conditionals	User Input
Lists	Functions
Algorithms	Any other similar skill

Advanced Grades 9-12 - Create a text-based program of your choosing using any text based language you are comfortable in. The code should demonstrate an understanding of at least 8 of these skills:

A more robust understanding of the intermediate skills	Interact with databases
Classes	Objects
Methods	Inheritance
Integrate multiple languages into one program	Any other similar skill

Web Design and Computer Entrepreneurship

Beginner Web Design and Computer Entrepreneurship – Grades 3-5 - Build a website demonstrating a knowledge of:

Use a website builder to create your website	Insert non-stock image into your site
Use a template to achieve a unified look	Explain CSS in your documentation, what CSS is and why it's important
Must have at least two pages and include all items listed above	

Intermediate Web Design and Computer Entrepreneurship – Grades 6-8 - Build a website demonstrating a

knowledge of:

Create your own site or use a website builder	Modify existing HTML
Use HTML5	Modify existing CSS
Have a unified theme throughout	Use a photo editing software to create custom images
Must have at least five pages and include all items listed above	

Advanced Web Design and Computer Entrepreneurship – Grades 9-12 - Build a website demonstrating a knowledge of:

Create a custom site using appropriate industry tools	Have a responsive website
Add useful and appropriate plugins	Test for and eliminate bugs
Include links for social media	Include custom audio/video
Must have at least ten pages and include all items listed above	

Computer Forensics (id theft, online bullying, ethical use of technology, responsible social media use)

Beginner Computer Forensics – Grades 3-5 – Research and create a 3-5 minute presentation on one of the following topics. Present to a group of peers and have an adult leader verify, create a YouTube or MP4 instructional video, or printed slides and notes using PowerPoint or similar presentation software.

Media Balance and Well Being	Cyberbullying, Digital Drama and Hate Speech
Privacy and Security	News and Media Literacy
Digital Footprint and Identity	Any other similar topic
Relationships and Communication	

Intermediate Computer Forensics – Grades 6-8 – Research and create a 6-8 minute presentation on one of the following topics. Present to a group of peers and have an adult leader verify, create a YouTube or MP4 instructional video, or printed slides and notes using PowerPoint or similar presentation software.

- Digital Citizenship:

Media Balance and Well Being	Privacy and Security
Digital Footprint and Identity	Relationships and Communication
Cyberbullying, Digital Drama and Hate Speech	News and Media Literacy

- Cyber Security

Ethics and Society	Security Principles
Classic Cryptography	Malicious Software
Physical Security	Web Security

- Any other similar topic

Advanced Computer Forensics – Grades 9-12 – Research and create a 10-12 minute presentation on one of the following topics. Present to a group of peers and have an adult leader verify, create a YouTube or MP4 instructional video, or printed slides and notes using PowerPoint or similar presentation software.

- Digital Citizenship:

Media Balance and Well Being	Privacy and Security
Digital Footprint and Identity	Relationships and Communication
Cyberbullying, Digital Drama and Hate Speech	Speech News and Media Literacy

- Cyber Security

Ethics and Society	Security Principles
Classic Cryptography	Malicious Software
Physical Security	Web Security

- Any other similar topic

Hardware and Networking Design/Install/Repair

Beginner – Grades 3-5 – Choose 1-2 items from the list and create a report/presentation (including images) of what you did.

Deconstruct and reconstruct a computer	Learn and report how binary works and how computers use numbers
Troubleshoot hardware problems	Explore operating systems
Investigate open source resources	Install/upgrade operating systems
Design a dream machine (give reasons)	Any other similar design/install/repair

Intermediate – Grades 6-8 – Choose 1-2 items from the list and create a report/presentation (including images) of what you did.

Identify network hardware	Add peripherals to a network
Design a computer network	Secure a networked computer
Explain Internet Protocol	Share applications simultaneously
Explain different types of servers	Setup a Raspberry Pi or other micro-controller
Use different protocols to communicate	Any other similar design/install/repair

Advanced – Grades 9-12 - Choose one or two items from the list and create a report/presentation (including images) of what you did.

Design and implement a computer network	Secure your network
Understand technology needs in your community.	Help to solve these needs by organizing a committee or team to work on identified issues.
Teach a computer science class to younger 4-Hers.	Build your dream computer
Network multiple micro-controllers	Research careers in technology
Any other similar design/install/repair	Any other similar design/install/repair

Graphic Design and Computer Art

There are three divisions: Beginner (Grades 3-5), Intermediate (Grades 6-8) and Advanced (Grades 9-12). Youth are to use a software program to create or design an item that requires graphic design or artistry. The name of the software and version is to be included with the exhibit. Exhibits are to be age/grade appropriate. Ideas include, but are not limited to the following:

Logo design	T-shirt or apparel screen printing design
Promotional brochure	Marketing materials
Computer generated art	Computer altered photographs/images – Photographs taken by the 4-H member and altered by the 4-H member using a computer are to be entered in the Photography project as a creative/experimental exhibit. Youth must obtain permission from the owner before altering someone else's photograph/image and include a copy of that permission with the exhibit to insure there is no copyright violation.

