

Appendix A

Computer History

1623 - Wilhelm Schickard (1592-1635), of Germany, made a "Calculating Clock". This mechanical machine was capable of adding and subtracting up to 6 digit numbers, and warned of an overflow by ringing a bell.

1642 – French mathematician, Blaise Pascal built a mechanical adding machine that became more famous than Schickard's and could add 8 digits at a time. He sold about 12 of them.

1822 - Charles Babbage (1792-1871) designed his first mechanical computer, the first prototype for the difference engine.

1989 – The first printing desktop calculator is developed.

1890 – Because the 1880 US Census took 7 years to complete, and the 1890 census was predicted to take more than ten years (they were supposed to be done every ten years) a competition was held to come up with a faster machine. The Tabulating Machine Company developed such a machine, and the company later became known as IBM. The machine counted all 62,622,250 people in just 6 weeks.

1899 – The director of the US Patent Office claims that, "Everything that can be invented has already been invented.",

1899-1951 – rapid development of computing machines.

1951 – UNIVAC-1 becomes the first successful computer. Handled both numbers and text.

1953 – An estimated 100 computers exist in the world.

1957 – First dot matrix printer developed by IBM.

1957 - "I have travelled the length and breadth of this country and talked with the best people, and I can assure you that data processing is a fad that won't last out the year." The editor in charge of business books for Prentice Hall.

1958 – The integrated circuit is invented, making computers after this much smaller and more powerful. Generation 2 computers.

1964 – The first mini-computer is available for \$16,000. The DEC-PDP-8.

1965 – BASIC computer language developed.

1969 – The first computers are networked together, called the “Arpanet”.

1970 – The first RAM chip developed and has 1k of memory.

1972 – Atari founded and the first video game, PONG, released.

1975 – Two computer geeks, Bill Gates and Paul Allen, use BASIC programming on the world’s first personal computer, the MITS Altair. They form a company called “Microsoft”.

1976 – Apple Computers founded.

1977 - "There is no reason anyone would want a computer in their home." Ken Olson, president, chairman and founder of Digital Equipment Corp..

1977 – The Apple II computer introduced.

1978- IBM releases their first true computer. With an 8-bit processor, the 8088 ran at 8 MHz. (compare to today’s 3,000+). This was not a personal computer and was too expensive for a average person to own.

1978 – Space Invaders was the first “fun” video game that is still popular today. It was the first game to save high scores, giving players a challenge.

1979 – The Commodore PET released. It has a 1 MHz processor, a 9” monochrome monitor, and programs loaded from a cassette tape. Priced at \$560.

1979 – The CD was invented.

1979 – IBM starts to see serious competition from Apple and Commodore.

1980 – IBM wanted to quickly be able to compete with Apple and Commodore, so hired a small company, Microsoft, to create the operating system for their first PC. This OS, known as DOS, had more than 300 bugs in the original version.

1981 - "640k ought to be enough for anybody.", Bill Gates.

1981 – IBM released their first PC for \$2,880. It had 64k of RAM, a mono display, and optional cassette drive. Two 160k floppy drives were optional as well.

1981 – Pacman introduced.

1982 – Commodore 64 released for \$595.

1982 – Audio books were the first recordings offered on CD.

1983 – Apple introduced the world's first computer with a GUI (graphic user interface) but it cost \$10,000 and was not a hit.

1983 – The IBM XT released for \$5,000.

1984 – HP released the first laser printer.

1984 – Apple Macintosh released.

1985 – Tetris released by a Russian company.

1985 – CD-ROM invented by Phillips.

1985 – November. WINDOWS RELEASED. It required DOS to be running as well, and was a copy of the Macintosh desktop. Apple sued Microsoft, and the case was in court until 1997 when it was dropped.

1986 – The Macintosh Plus released.

1987 – Windows 2 released.

1990 - Windows 3 released. The first real success for Microsoft, and required multi-tasking for the first time, giving Apple something to worry about.

1992 – Windows 3.1 released.

1992 – Wolfenstein 3D released.

1993 – Individuals were allowed to dial in to the Internet for the first time.

1993 – The Pentium chip developed.

1995 – Windows 95 released.

1997 – Pentium 2 chip released. Microsoft buys part of Apple as part of an agreement for Apple to drop its lawsuit against Microsoft.

1998 – Windows 98 released.

2000 – Windows 2000 released. Windows ME came out the same year because of some of the problems with 2000.

2001 – Windows XP released.

Appendix B

Computer Hardware



MONITOR



CPU OR "TOWER"



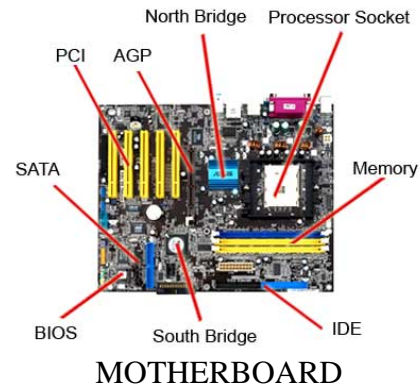
MOUSE



KEYBOARD



PORTABLE STORAGE DEVICES
(Floppy Discs and CD-ROMS)



MOTHERBOARD

Appendix C

Boise School District Internet Safety Tips

- You've been told "don't talk to strangers". Well, people you meet on the Internet are strangers. Other than friends you know in "real life" people online are not your friends, you don't know them.
- Never give out personal information about yourself or your family and friends, no matter how well you think you know your cyberpals - name, address, telephone number, where you go to school, even what city you live in. Don't send pictures of yourself either.
- Never agree to meet an online friend in person. If someone asks to meet you, talk to your parents about it.
- Don't lie about your age so you can go somewhere on the Internet that is for adults only.
- Passwords must be kept secret from everyone but your parents.
- If you get email from someone you don't know, don't open it - just delete it. If you get attachments from people you do know, always run them through an antivirus program before you open them.
- Something you see on the Internet might make you uncomfortable or confused. Tell your teacher or parent right away.
- Don't be a bully and don't accept bullying on the Internet. Be polite, kind and respectful. Tell your teachers or parents if someone is mean to you.
- Never respond to messages that have bad words or are weird and scary.
- Don't spend a lot of time on the computer. You need lots of other activities, exercise, and time playing with your friends to grow up healthy and balanced.
- Grass is orange, cookies are good for you and I saw Elvis last week. Believe me? Don't believe everything you see on the Internet either. Just as in real life, on the Internet sometimes it is not easy to figure out if someone is lying to you or misleading you.
- Don't do anything on the Internet that may cost money without your parent's permission. Never give out credit card information.
- If you're upset or angry about something don't use the Internet to vent your feelings. Go to a friend, a relative or teacher you are comfortable talking to instead.

Some Tips for Teens

- Did you know that colleges, universities and prospective employers are checking profiles and postings on social networking sites such as My Space and Facebook? Also, even if you have configured your profile to be private, a skilled hacker can get behind that privacy screen.
- Use hard to guess passwords and change them regularly. Don't share them with anyone, even your best friends.
- Don't choose a screen name that includes part of your real name or could be considered provocative.
- Never give out personal information about yourself, your family or your friends to people you meet online. Never give out information that would allow someone to find you off-line.
- Never enter an area that charges for services without parental permission.
- Be a cautious online consumer. Shopping online is easy and fun, but only shop at reputable, well known sites. Never give credit card information to a site that is not secure or trustworthy.
- Before you open an email attachment from someone you know, run it through an antivirus program. Don't even think about opening an email or attachment from someone you don't know.
- Use good sense and judgment - don't break the rules for someone and don't allow yourself to be taken in by people you meet on the Internet. Someone or something sound too good to be true? Probably is!
- Let your parents or teachers know if you fell bullied, threatened or harassed in any way on the Internet. Do not reply to these types of attacks. If someone is bothering you, sign off.
- If you become aware of dangerous behavior or threats made online, print the screen and tell an adult immediately.
- Avoid Internet obsession. Maintain balance in your life - too much time online can mess up your real world social life and activities.
- Don't believe everything you read online, be skeptical of advertisements, stories and promises and hold on to your sense of right and wrong.

Appendix D

Boise School District Internet Use Policies

Prohibited uses of technology in this district include, but are limited to:

- Sending, receiving, displaying, or accessing defamatory, inaccurate, abusive, obscene, profane, sexually oriented, threatening, racially offensive, harassing, or illegal materials.
- Encouraging the use of or promoting the sale of controlled substances or drugs.
- Any attempt to harm or destroy data of another user, the network, any technology equipment, or any of the agencies or other computer network services that are connected to the Internet. This includes, but is not limited to, the uploading or creation of computer viruses.
- Any attempt to sell or offer for sale any goods or services that could be construed as a commercial enterprise, unless approved by the Board or their designee.
- Redistributing a copyrighted program or copyrighted material without the express written permission of the owner or authorized person or as provided by the fair use exception. This includes uploading and downloading of materials.
- Invading the privacy of individuals, revealing personal information of others or themselves, such as home address, or phone number.
- Logging in to the system using another user's account or password.
- Leaving an account open or unattended.
- Violating any local, state, or federal regulation or statute.
- Altering computer equipment as set up by the system administrator.

Appendix E

LEGO ROBOTICS

CHASSIS CONSTRUCTION

NAMES: _____

PERIOD: ____

DIRECTIONS:

Using the Mindstorms for Schools manual, build the following subassemblies for 20 points each. (Two of them must be motorized - your choice which ones!)

___ 2-Wheeler Chassis

___ Back and Turn Chassis

___ 4-Wheeler Chassis

___ Back and Forth Chassis

___ Grabbing Mechanism

___ Machine of your choice (an original design of your own!)

___ Hill Climber Chassis

___ Turntable Mechanism

___ Crane Mechanism

___ Pathfinder Chassis (instructions are online at <http://www.boiseschools.org/schools/lesbois/teachers/johns/pathfinder1.htm>)

_____ **TOTAL POINTS/200**

Appendix F

LEGO ROBOTICS

Pop Can Challenge

NAMES: _____

PERIOD: _____

Directions: Each class period has its own LEGO kit. One person in each group is responsible for keeping the kit organized and inventoried. You should assign at least one programmer and one builder in your group. After going through all the tutorials for the LEGO computer program, build a robot that can knock eight empty pop cans completely across a black line and outside a circle. Have your instructor witness and sign off your best attempt.

Rules: Your robot can only be 12" x 12" maximum in size and is limited to the LEGO pieces included in the kit. Robots will be given 60 seconds inside the Pop Can Challenge Arena. You may use timing, touch sensors, or light sensors.

Grading: (Instructor will circle one)

(8 cans=200 pts. , 7 cans=180 pts., 6 cans=170 pts., 4 cans=160 pts., 2 cans=150 pts., 1 can=140 pts., 0 cans=130 pts.

200=A+

180=A-

170=B

160=B-

150=C

140=C-

130=D

+/- 10% for organization/inventory of kit.

Appendix G

ROBOTICS RESEARCH

NAMES: _____

PERIOD: ____

DIRECTIONS:

Use the Internet to research robot history, robots in movies, robots in fiction, robots as toys, robots in industry, robots in law enforcement/military, and robots in space. Display what you learn in a PowerPoint presentation. Keep track of every Web site that you take information from and list them alphabetically on a reference slide. (NOTE: Google and Yahoo are search engines, not references and cutting and pasting are prohibited!)

____ Title slide with your names and topic (20 pts.)

____ Robot history - *at least two slides* (20 pts.)

____ Robots in movies - *at least two slides* (20 pts.)

____ Robots as toys - *at least two slides* (20 pts.)

____ Robots in industry - *at least two slides* (20 pts.)

____ Robots in law enforcement and military - *at least two slides* (20 pts.)

____ Robots in space - *at least two slides* (20 pts.)

____ Six References - *at least one per topic* (30 pts.)

____ Overall Appearance and Quality - graphics, colors, animations, etc. (10-30 pts.)

_____ **TOTAL POINTS**

Appendix H

DROIDWORKS

NAMES: _____

PERIOD: ____

Directions: Open up Star Wars Droidworks and go through each of the challenges. **Have your instructor sign you off after you complete each challenge!**

___ The Slippery Slope

___ Strange Attraction

___ Open Sesame

___ Gearing Up

___ Maze of Darkness

___ Dead Weight

___ The Lean Machine

___ Fire When Ready

GRADING:

0 = D

1 = C-

2 = C

3 = C+

4 = B-

5 = B

6 = B+

7 = A

8 = A+

Appendix I

Sim RC Racing

NAME: _____ PERIOD: _____

PERIOD: ____

DIRECTIONS:

1. Begin the game using your first initial and full last name (B. Johns).
2. At the main menu, under "preferences" select 5 minutes as the race type/length!
3. Select "Race Circuit"
4. Race the three circuits, plus create a custom circuit; race the Amateur Circuit first!
5. **Have your instructor sign you off after each circuit!**

Final standings in the **Amateur Circuit** (Mr. Johns will circle one):

___ 1st (50) ___ 4th (43) ___ 7th (36)
___ 2nd (48) ___ 5th (40) ___ 8th or lower (35)
___ 3rd (45) ___ 6th (38)

Final standings in the **Pro Circuit** (Mr. Johns will circle one):

___ 1st (50) ___ 4th (43) ___ 7th (36)
___ 2nd (48) ___ 5th (40) ___ 8th or lower (35)
___ 3rd (45) ___ 6th (38)

Final standings in the **Super Circuit** (Mr. Johns will circle one):

___ 1st (50) ___ 4th (43) ___ 7th (36)
___ 2nd (48) ___ 5th (40) ___ 8th or lower (35)
___ 3rd (45) ___ 6th (38)

Select seven (7) different tracks from the list to create your own **Custom Circuit** (Mr. Johns will circle one):

___ 1st (50) ___ 4th (43) ___ 7th (36)
___ 2nd (48) ___ 5th (40) ___ 8th or lower (35)
___ 3rd (45) ___ 6th (38)

Appendix J



NAME: _____ PERIOD: _____

Directions: Start a new team, import at least one pre-built robot, and go to "Event Schedule" to enter tournaments. Show your instructor this grade sheet on day 7.

GRADING:

*You begin with 60 points.

_____ Seasons in competition = +1% for each completed season.

_____ Highest Single Match Score = +1% for every 1,000 points.

_____ Fastest Match Win <10seconds = +5%, < 20s = +2%, < 30s = +1%

_____ Event titles won = +1% per title.

_____ TOTAL POINTS + 60 X 2 = _____ (Out of 200)

200 = A+

190 = A

180 = A-

170 = B

160 = B-

150 = C

140 or less = C-

Appendix K

RAT MAZE

NAMES: _____ PERIOD: ____

Directions:

Have your instructor witness and sign off your best attempt at the Rat Maze.

of corners _____ X 13.3 points = _____ total points

Appendix L

PAPER BRIDGES

NAMES: _____

PERIOD: ____

DIRECTIONS:

Use a single sheet of paper to build a bridge that will cross a 6" gap between two tables or desks. The bridge will be graded for creativity (good ideas), engineering (techniques for strengthening paper), appearance (how "pretty" it is), and total load held for ten seconds (number of pennies). Extra credit will be awarded to the team whose bridge holds the most pennies.

GRADE:

- ___ 10 pennies (1 point)
- ___ 20 pennies (2 points)
- ___ 30 pennies (4 points)
- ___ 50 pennies (5 points)
- ___ 70 pennies (6 points)
- ___ 90 pennies (8 points)
- ___ 100 pennies (10 points)
- ___ More than 100? (+10 points for the *most* pennies)

___ **TOTAL POINTS**

Appendix M

PAPER FLIGHT

NAMES: _____

PERIOD: ____

DIRECTIONS:

Using the paper provided you, build the following models:

___ Paper rocket for distance

- 1st place = 25 points
- 2nd place = 20 points
- 3rd = 18 pts.
- 4th = 16 pts.
- 5^{th or less} = 15 pts.

___ Paper airplane for distance

- 1st place = 25 points
- 2nd place = 20 points
- 3rd = 18 pts.
- 4th = 16 pts.
- 5^{th or less} = 15 pts.

___ Paper airplane for flight duration

- 1st place = 25 points
- 2nd place = 20 points
- 3rd = 18 pts.
- 4th = 16 pts.
- 5^{th or less} = 15 pts.

___ Teach the class how to build/fold a new paper airplane (25 pts.)

Appendix N

C.A.D.

NAMES: _____

PERIOD: ____

DIRECTIONS:

You have just inherited a good amount of money. But the only way it can be spent is on your own house and only if you design it yourself! Use the C.A.D. program introduced to you in class to design this house. The other requirements are below (20 points each):

___ Total square footage is 1,995.

___ There is at least one bedroom w/ bed, dresser, closet, and nightstand.

___ There is at least one bathroom with shower (or tub), window, toilet, sink, and mirror.

___ Kitchen with a stove, sink, dishwasher, and refrigerator.

___ Dining area with table and chairs

___ Living room with fireplace, couch, end table, lamp, and television.

___ Laundry room with washer and dryer.

___ Water heater.

___ Furnace, air conditioner, and thermostat.

___ At least two smoke detectors.

___ **TOTAL POINTS**

Appendix O

GRAVITY RACE CAR

NAMES: _____

PERIOD: ____

DIRECTIONS:

Using only the wood and wheels provided in the kit given you, construct a Gravity Race Car that follows the given criteria. The owner of the fastest car will be rewarded!

GRADING:

___ Car meets requirements/guidelines (10-15-20 points)

___ Car appearance (10-15-20 points)

___ Car Performance

1st place! = 60 points

2nd place = 55 points

3rd place = 50 points

4th place = 45 points

5th place = 40 points

6th place = 35 points

7th place or lower = 30 points

_____ TOTAL POINTS