

APPENDIX A

TECHNOLOGY TIMELINE

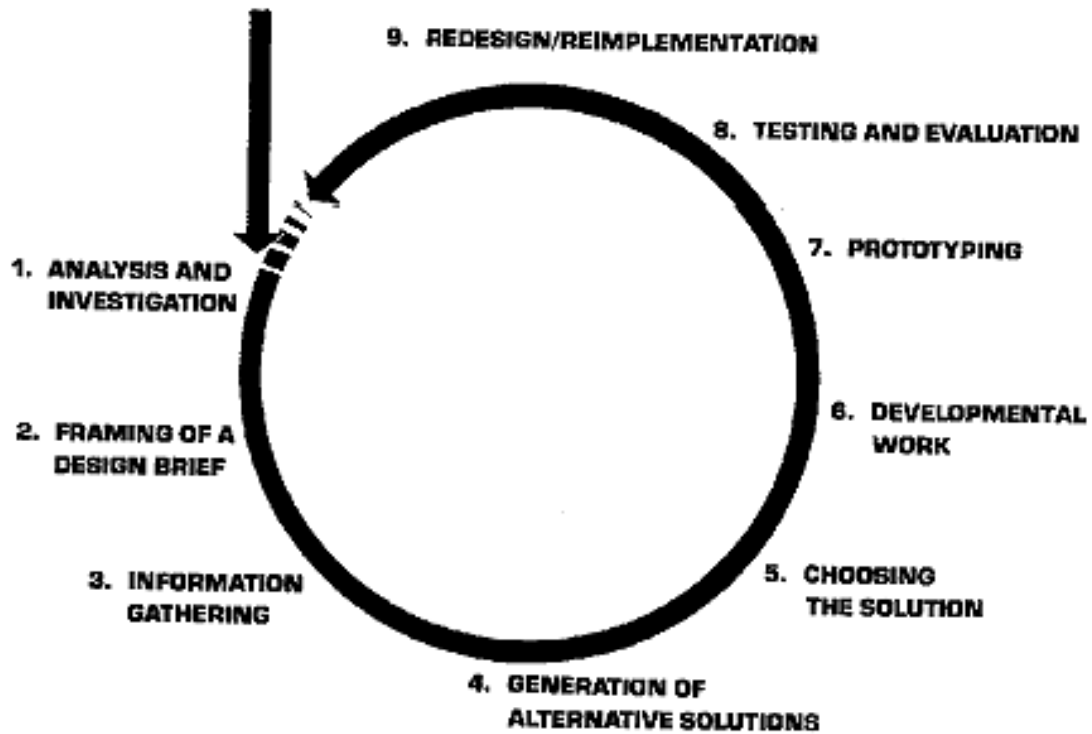
NAME: _____ PERIOD: _____

Directions: Research 25 major technology inventions and/or innovations and then present your findings to the class (Speech or PowerPoint). Refer to the rubric below for grading criteria:

| Grade | # of Inventions | Photo | Inventor | Importance | Most Important? |
|--------------------|---|--|---|--|---|
| A+ 20 points | 20 inventions or innovations are presented. | You include two very good photos of each invention or innovation | The inventor for each invention is listed, with good biographical information and a PHOTO | Explain why each invention is important to society <i>and</i> your life. | It is very clear why you believe one invention is THE most important, with examples. |
| A- 18 points | 18 inventions or innovations presented. | You include two photos of each invention or innovation | Each inventor listed with good biographical information but no photo | Explanations are there but are not 100% clear. | It is clear which invention you think is the more important, but no examples are given. |
| B 17 points | 15 inventions or innovations presented. | You include one photo of each invention or innovation | All inventors listed but missing some bio. Info. | Some explanations are missing. | It is not 100% clear why one invention is more important than the others. |
| C 15 points | 12 inventions or innovations presented. | Most inventions/innovations have a photo. | Missing 1 or 2 inventors or 1 or 2 biographies. | More than half of the inventions do not discuss importance. | Your argument for one invention being the most important is weak. |
| D 13 points | < 10 inventions or innovations presented. | Most inventions/innovations do NOT have a photo | Missing 3 or more inventors or 3 or more biographies | Only a few inventions include why they are important. | You do not name one invention as the most important. |

APPENDIX B

Principles of Design



The "Design Loop"

APPENDIX C

MEDIEVEL SIEGE VIDEO (NOVA) QUESTIONS

NAME: _____ PERIOD: _____

1. How many siege engines have been found and restored that date back to the medieval ages?
2. Da Vinci drew a trebuchet for throwing what object?
3. The piece of playground equipment that most resembles a trebuchet is the ____
4. Name one thing castle builders constructed to make sure that enemy siege engines would not be able to reach their castle
5. Could medieval archers hit a target 300 yards away?
6. Engineers were held at a higher social status than knights because of their ability to build siege engines. T or F
7. What keeps a trebuchet from tipping over?
8. Were nails used to build medieval siege engines?
9. What did they call the wooden structure on top of castle walls that provided extra protection?
10. How thick is a typical castle wall?
11. What did medieval trebuchets use for their counterweight?
12. Two trebuchets reproductions were built during this video. How were they different?
13. Trebuchets were first built in which country?
14. The first shot by the first trebuchet was too high and long. T or F?
15. Where in Scotland did these experts recreate this castle siege?
16. Which shot for the first trebuchet finally hit the stone portion of the castle wall?
17. How many tons of weight could fit in the second trebuchet's counterweight box? 3, 8, 12, or 24?
18. Which of the two trebuchet designs was probably the one used in real medieval castle attacks?
19. Which type of trebuchet was "Warwolf"?
20. What weapon replaced medieval siege engines?

APPENDIX D

SIEGE ENGINE CONSTRUCTION

Directions: Build a catapult or trebuchet out of any available materials. Your siege engine must be able to hit a target accurately at close range as well as be powerful enough to destroy a castle made of sugar cubes!

| GRADE | Sketches | Working Drawings | Construction Quality | Catapult B-Ball | Castle Attack! |
|-----------------|--|--|---|--|--|
| A+ 20 points | At least 3 designs are sketched with dimensions and materials listed and drawings are good. | Complete, full size working drawing with dimensions. | Excellent construction; neat, clean, straight, and strong! | 5 points for every hit and 20 points for each "basket" (up to 20 points maximum. | 10 points for inside castle 5 points for a direct wall hit. |
| A- 18 points | At least 3 designs are sketched but not all dimensions or materials are listed or quality is fair. | Plans are not complete enough for someone else to use but dimensions are listed. | Very good construction quality but not as neat, clean, straight, or strong as possible. | <i>A coffee can is the basket and is moved further away each round.</i> | Maximum of 20 points. <i>The target is a castle made of sugar cubes which is moved</i> |
| B 17 points | 2 ideas are sketched with good or fair quality. | Plans are not full size or some dimensions missing. | Good construction. Not straight or very neat, but it should work! | | <i>Further away each round.</i> |
| C 15 points | 2 ideas are sketched but quality is poor. | Plans are incomplete or poor quality. | Average quality; wobbly and unpredictable. | | |
| D 13 points | Only 1 idea is sketched. | Plans are missing or not usable. | Poor quality. This machine probably won't work. | | |

APPENDIX F

VIRTUAL GOLF

NAME: _____ PERIOD: _____

DIRECTIONS: Go to “New Round”, then “Covered Bridge” and “All 18 Holes”

SETTINGS:

- Stroke play
- 1 mulligan allowed
- 6” gimmies
- Any swing style is allowed

GRADING:

(Have your instructor circle your *best* 18 holes)

| | | |
|------------|-----------|----------------|
| 100% = -10 | 89% = +1 | 79% = +13 |
| 99% = -9 | 88% = +2 | 78% = +14 |
| 98% = -8 | 87% = +3 | 77% = +15 |
| 97% = -7 | 86% = +4 | 76% = +16 |
| 96% = -6 | 85% = +5 | 75% = +17 |
| 95% = -5 | 84% = +6 | 74% = +18 |
| 94% = -4 | 83% = +7 | 73% = +19 |
| 93% = -3 | 82% = +8 | 72% = +20 |
| 92% = -2 | 81% = +9 | 71% = +21 |
| 91% = -1 | 82% = +10 | 70% = +22 or > |
| 90% = PAR | 81% = +11 | |
| | 80% = +12 | |

APPENDIX G

GOLF HISTORY

The origin of the game of golf has never been clearly established.

The Romans during the reign of Caesar played a game resembling golf by striking a feather-stuffed ball with club-shaped branches.

Book illustrations show the Dutch playing a similar game on their frozen canals about the 15th century.

Cross-country variations were popular in France and Belgium.

In 1457 golf was banned in Scotland because it interfered with the practice of archery, which was vital to the defense effort. Nevertheless the Scots continued to brave the opposition of both Parliament and church by playing the game on seaside courses called links.

Scotland is the home of the world's oldest golf course, St. Andrews, which was used as early as the 16th century.

During the 1800s the gutta-percha ball, or "guttie," replaced the feather-filled ball that had been used for centuries.

In 1860 the first British Open was played at Prestwick, Scotland. The competition was opened to both professionals and amateurs the following year.

The first permanent golf club in North America, Canada's Royal Montreal Club, was founded in 1873.

St. Andrews, one of the oldest golf clubs in the United States, was established as a 3-hole layout in 1888 at Yonkers, N.Y. Its founders were known as the "Apple Tree Gang" because of the many apple trees on their course, which was extended to 6 holes on a cow pasture.

The first 18-hole course in the United States, the Chicago Golf Club, was founded near Wheaton, Ill., in 1893.

The governing body of golf in the United States is the United States Golf Association (USGA), which was founded in 1894. The organization, whose headquarters are in Far Hills, New Jersey, rules on ball and club specifications and such regulations as hazards and scoring. It works with the Royal and Ancient Club of St. Andrews in reviewing international rules.

The Professional Golfers' Association of America (PGA) was founded in 1916, 15 years after the first Professional Golfers' Association was established in Great Britain. It conducts the PGA and PGA Senior tournaments and Ryder Cup competition between members of the American and British PGAs.

Both amateurs and professionals compete in open tournaments. Among major tournaments that have the support of the PGA are the United States Open, United States Women's Open, PGA, Ladies Professional Golf Association (LPGA), Masters, British Amateur, British Open, Canadian Open, and United States Amateur and United States Women's Amateur (also known as National Amateurs).

With the emergence of Arnold Palmer in the late 1950s and Jack Nicklaus in the early 1960s, tournament golf once again captured the imagination of sports fans everywhere. Nicklaus became the first golfer to win more than 200,000 dollars in a single season (1971) and also the first to earn more than 300,000 (1972).

Tom Watson was the first whose season's earnings topped 400,000 (1979) and 500,000 (1980).

Curtis Strange was the first million-dollar-a-year player (1988).

Tom Kite, the 1989 Player of the Year, set a single-season money-winning record with 1.4 million dollars.

By the late 1960s only one player had earned more than one million dollars in his career. Palmer was the first golfer whose career earnings passed the million-dollar mark (1968).

Nicklaus, the only golfer to be chosen five times as the PGA Player of the Year, was the first to earn more than 2 million (1973), 3 million (1977), 4 million (1983), and 5 million (1988) dollars.

Kite reached 6 million dollars in 1990.

Outstanding among the early woman golfers was Joyce Wethered, who won the British Ladies' Amateur four times between 1922 and 1929.

Some famous names in golf are:

- Ben Hogan – won more than 60 tournaments,
- Nancy Lopez – helped make women's golf popular.
- Jack Nicklaus – Won British Open 3x, the U.S. Open 4x, the Master's Tournament 6x, the PGA Tournament 5x. He is a respected golf course designer.
- Arnold Palmer – Won British open 2x, the U.S. Open 1x, and the Master's Tournament 4x.
- Lee Trevino – Won British Open 2x, the U.S. Open 2x, and the PGA Championship 2x.

- Tiger Woods – In 1997 Woods became the youngest golfer and first African American to win the Master's. In 2001 he became the only golfer in history to hold all four championship golf titles at the same time. He has won the Master's Tournament 4x, the British Open 2x, the U.S. Open 2x, and the PGA Championship 2x. All at the age of 30. He is 3rd on the all-time championship list behind Bobby Jones and Jack Nicklaus. By the end of 2004, Woods had earned over \$45,000,000 by playing golf.

APPENDIX H

GOLF TERMINOLOGY

Bogie – Hitting the ball into a specific hole in one more stroke than par.

Par – Hitting the ball into a specific hole in the given number of strokes for that hole.

Birdie – Hitting the ball into a specific hole in one less stroke than par.

Eagle – Hitting the ball into a specific hole in two less strokes than par.

Chip – Hitting the ball into the air with enough flight to land on the green and roll across the green towards the hole.

Bunker – A hazard usually filled with sand.

Gimmie – When you are so close to the hole that your opponent doesn't require you to hit the ball in.

Green – The flat area where the hole is located.

Hook – Hitting the ball in such a way as to cause it to curve from outside to inside.

Slice – Hitting the ball in such a way as to cause it to curve from inside to outside.

Fringe – The short area of grass around the green. Longer than the green's grass but short than the fairway.

Woods – Clubs used for long shots. Traditionally were made of wood but now made from high-tech metals.

Irons – A metal headed club used for all shots but long drives, chipping, or putting.

Fairway – The long, narrow part of a hole in which the ball should land after a drive.
(Unless the green is reachable in one shot.)

APPENDIX I
18-HOLE CHAMPIONSHIP GOLF COURSE

NAME: _____ PERIOD: _____

Directions: Use paper and pencil or a computer program (like Paint or Paint Shop Pro, etc.) to create an 18 hole golf course. Do NOT color in the tee box, fairway, or green but DO color the water, trees, and sandtraps.

REQUIREMENTS:

___ Cover page with your name, name of course, and colored overview of all 18 holes.

___ Each hole has a tee box.

___ Each hole has at least one sand trap

___ Each hole has a green with hole (the hole will be a small dot)

___ Each hole has trees and/or bushes

___ Each hole has a 2"x1" rectangle with hole information in it (Hole #, yards, Par).

___ Scale: 2"=100 yards

___ At least one hole is a 3-par

___ At least one hole is a 5-par

___ Neatness worth 10% (coloring, detail, time spent, etc.)

APPENDIX J

PENCIL GOLF

Directions:

1. With a partner and two pencil golf courses, choose one course to play first.
2. Select who will go first.
3. Using a sharp pencil, push or flip the pencil forward from the tee box by pushing on the eraser end of the pencil. Where the trail of lead ends is how far the ball was hit. (Now it is your partners turn.) On your second turn, move the pencil tip to the end of your last “stroke” and flip the pencil forward again. Continue this until you reach the green and the lead trail hits or crosses the hole. The number of flips it takes to reach the hole is your score; write this score down and keep track of each score for all 18 holes. The person with the lowest score wins!
4. Now play the other course and see how you do!

NOTE: If laminated or placed under a clear sheet of plastic, vis-à-vis pens can be used, then erased, and the course can be re-used again and again!

APPENDIX K

MARBLE GOLF

NAMES: _____ PERIOD: ____

Directions: Construct a tabletop miniature golf hole that is playable with a marble. The course must keep the marble on the table and it must be possible to make par. Par must be no more than 5 strokes.

Grading:

___ Creativity (5-10-20 pts)

___ Hole has a clear theme (5-10-20 pts)

___ Neatness (5-10-20 pts)

___ Playable (5-10-20 pts)

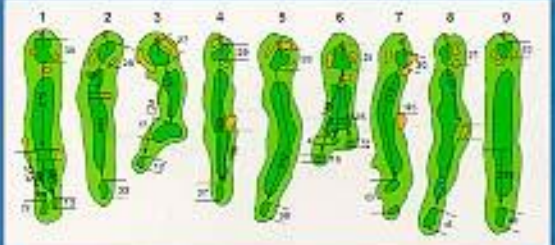
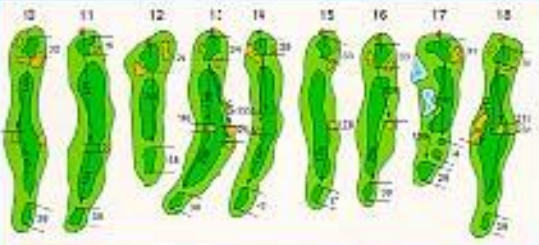
___ Fun (5-10-20)

TOTAL POINTS: ____/100

APPENDIX L

SCORE CARD FOR 18 HOLES OF GOLF

Directions: Print off one score card per student. These may be used for the 18 hold championship golf courses as well as Frisbee golf!

|  | | | | | | | | | |  | | | | | | | | | | | | | | | |
|---|---------|-----|-----|-----|-----|------------------------------|-----|-----|-----|--|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| HOLE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | OUT | P | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | IN | TCT | ADJ | HCP | NET |
| CHAMPIONSHIP <small>Yr/Inq/Blade 223/129</small> | 520 | 326 | 121 | 398 | 371 | ³⁰ ₁₆₀ | 400 | 436 | 497 | 3276 | L | 416 | 437 | 190 | 430 | 507 | 397 | 338 | 172 | 485 | 3372 | 6647 | | | |
| REGULAR <small>Yr/Inq/Blade 222/119</small> | 511 | 313 | 112 | 384 | 355 | 150 | 354 | 418 | 430 | 3077 | A | 404 | 422 | 174 | 418 | 490 | 387 | 323 | 189 | 472 | 3269 | 6366 | | | |
| PAR | 5 | 4 | 3 | 4 | 4 | 3 | 4 | 4 | 5 | 36 | E | 4 | 4 | 3 | 4 | 5 | 4 | 4 | 3 | 5 | 36 | 72 | | | |
| HANDICAP | 7 | 15 | 17 | 3 | 9 | 13 | 5 | 1 | 11 | | R | 6 | 2 | 10 | 4 | 14 | 8 | 15 | 12 | 16 | | | | | |
| MATCH+/- | | | | | | | | | | | | | | | | | | | | | | | | | |
| RED <small>Yr/Inq/Blade 222/124</small> | 504 | 303 | 109 | 374 | 346 | 141 | 346 | 404 | 420 | 2997 | | 391 | 410 | 169 | 407 | 478 | 377 | 314 | 125 | 463 | 3121 | 6118 | | | |
| PAR | 5 | 4 | 3 | 4 | 4 | 3 | 4 | 4 | 5 | 36 | | 4 | 5 | 3 | 5 | 5 | 4 | 4 | 3 | 5 | 36 | 74 | | | |
| HANDICAP | 3 | 13 | 17 | 7 | 11 | 15 | 5 | 1 | 9 | | | 4 | 12 | 16 | 10 | 2 | 8 | 14 | 18 | 6 | | | | | |
| DATE: | SCORER: | | | | | | | | | | ATTEST: | | | | | | | | | | | | | | |

APPENDIX M

CO2 DRAGSTERS

100 points

NAMES: _____ PERIOD: _____

*Dragsters must be 8" long, have at least two axles, at least two wheels, two screw eyes, be painted, and have a number. Also, for safety, at least 1/8" of wood must surround the cartridge hole. If the CO2 chamber is cut into, it may be unsafe to launch.

*Extra axles and screw eyes are available if needed. Anything else that is lost must be replaced on your own.

___ Dragster Designer software (Drag must be under 1000!) 10 pts.

___ Concept sketches with at least five ideas 10 pts.

___ Design Sketch (Top and side view-see booklet for example) 10 pts.

___ Working drawing (on graph paper, actual size!) 10 pts.

___ Finished dragster, painted and numbered. 10 pts.

Drag race for *speed!*

___ .40 (95 mph) = 50 pts.

.50 (76 mph) = 40 pts.

.60 (63 mph) = 35 pts.

.70 (54 mph) = 30 pts.

.80 (48 mph) = 25 pts.

.90 (42 mph) = 22 pts.

1.0 (38 mph) = 20 pts.

< 1.0 or no time = 10 pts.

APPENDIX N

MOUSETRAP RACES

NAMES: _____ PERIOD: _____

Directions: You will receive one mousetrap that must last two weeks. You may tweak it and alter it in any way or leave it as is. Replacements are \$1.00 or you can provide your own. Using the energy from the snap of the mousetrap, you must propel the mousetrap forward. On the 5th day there will be a 15' race for the greatest acceleration. On the 10th day there will be a competition for the greatest distance. Use any parts available to you. Creativity and quality will be rewarded!

ACCELERATION (50 points)

- ___ A+ for 1st place
- ___ A for 2nd place
- ___ A- for 3rd place
- ___ B+ for 4th place
- ___ B for 5th place
- ___ B- for 6th place
- ___ C+ for 7th place
- ___ C for 8th place
- ___ C- for 9th place or lower

DISTANCE (50 points)

- ___ A for 2nd place
- ___ A- for 3rd place
- ___ B+ for 4th place
- ___ B for 5th place
- ___ B- for 6th place
- ___ C+ for 7th place
- ___ C for 8th place
- ___ C- for 9th place or lower

FINAL GRADE: _____ / 100 points

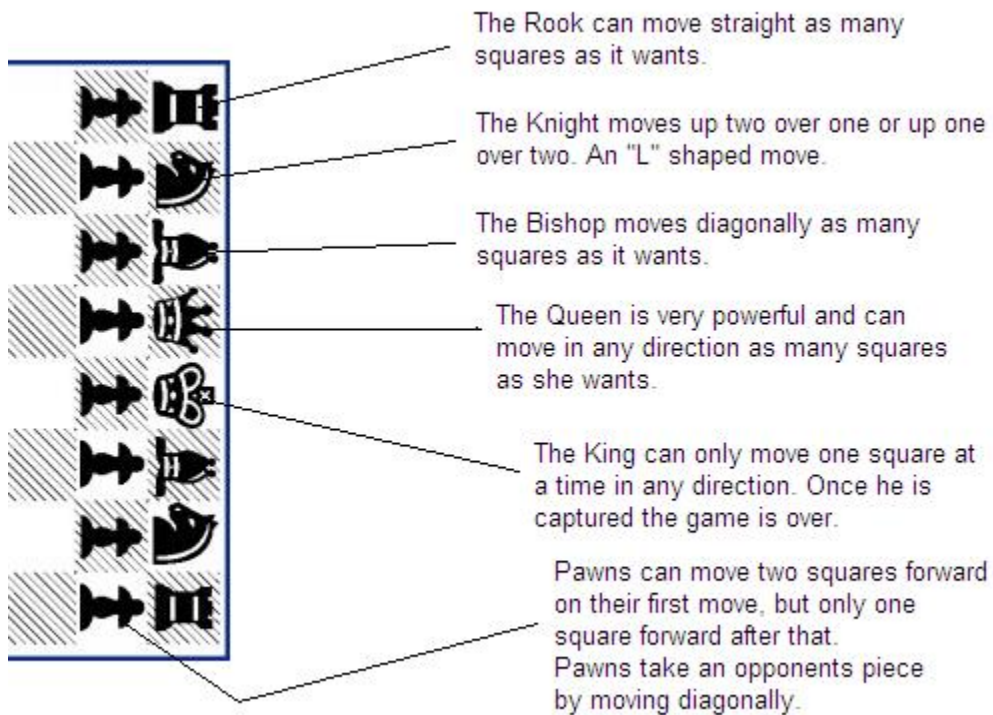
APPENDIX O

CHESS

Directions:

To set up a chess board, place all pawns across the second row. In the back row place the rooks in the corners, then the knights, and bishops. The queen goes on her own color, then the king on the remaining square.

Begin play with the white team moving first and continue until there is a checkmate.



APPENDIX P

A BRIEF HISTORY OF CHESS

- 900 Chess introduced into Europe.
- 1060 William the Conqueror breaks chess board over the head of the Prince of France.
- 1090 Boards with alternating lights and dark squares are introduced.
- 1100 Chess is accepted as a regular part of noble life.
- 1200 "Great Chess" introduced with a board of 100 squares.
- 1220 Chess is no longer played with dice to determine moves.
- 1490 First known painting of chess titled, "The Chess Players" by a Venetian artist.
- 1492 Ferdinand played chess while Columbus navigated.
- 1555 A new move, called "castling" introduced.
- 1584 Ivan the Terrible dies at the start of a chess match.
- 1613 Chess is played on stage in the Shakespeare play, "The Tempest".
- 1641 First mention of chess in America.
- 1706 Benjamin Franklin is born, who later wrote, "Morals of Chess".
- 1802 First American chess book titled, "Chess Made Easy" published.
- 1844 First telegraph chess match played between Baltimore and Washington.
- 1861 First chess match played with timed moves.
- 1914 First time chess appeared in a movie (The Wishing Ring).
- 1942 First U.S. Speed Chess match.
- 1976 Chess playing computers became popular.
- 1981 First computer chess program to win a state championship.
- 1982 First time an American became a world champion chess player.
- 1982 First chess game on a computer bulletin board.
- 1983 First time a computer beat a master chess player.

APPENDIX Q

COMPUTER GRAPHICS *Digital Editing with Wild Photo Effects*

NAMES: _____ PERIOD: _____

Directions: Use the *Wild Photo Effects* program and an image you find online to create a new, highly edited image. Use at least one effect in each category below.

___ Catastrophe Tools

Collapse
Explosion
Punch
Pinch

___ Toolkit

Zoom
Rotate
Move

OVERALL QUALITY: +10/-10

___ Shrink

Zoom Out
Zoom Out Horizontal
Zoom Out Vertical

___ Grow

Zoom In
Zoom In Horizontal
Zoom In Vertical

___ Plain

Undo
Smooth

___ Global

Zoom
Wind
Tornado
Blot
Ripples
Wave
Sands
Shrink

APPENDIX R

Morphing and Makeovers!

NAME: _____ PERIOD: ____

MORPHING

Directions: Use the morphing program your instructor introduced you to, to create a complete morph of two objects.

Grading: 50 points possible

- A+ Exceptional quality and the morph is very convincing!
- A Great quality but the morph is a little rough in places.
- B Good quality but the morph is a little awkward and missing something.
- C Fair quality but the morph images are not a good fit.
- D Project not complete.

VIRTUAL MAKEOVER

Directions: Use the makeover program your instructor introduced you to, to give someone in your group a complete makeover!

Grading: 50 points possible

- A+ Exceptional quality and the makeover is very convincing!
- A Great quality but the makeover is a little rough in places.
- B Good quality but the makeover is a little awkward and missing something.
- C Fair quality but the makeover options are not a good fit for the individual.
- D Project not complete.

ANIMATION

Directions: Use the animation program your instructor introduced you to, to create an animation masterpiece!

Grading: 50 points possible

- A+ At least 50 frames of GREAT non-repeating animations (2 things are animated).
- A At least 50 frames of GREAT non-repeating animation (one object is animated).
- B At least 40 frames of animation and/or quality is GOOD.
- C At least 40 frames of animation and/or quality if FAIR.
- D Less than 40 frames and/or POOR quality.

APPENDIX S

WEB PAGE DESIGN

NAME(S): _____ PERIOD: _____

BSD Policy: "Inclusion of a student's phone number, address, e-mail address, or information indicating the physical location of a student at a given time, other than attendance at a particular school or participation in a district sponsored activity, is prohibited."

- ___ Main page is saved as "index.htm"
- ___ Each page has a "title" and not "New Page 1"
- ___ You have a custom logo or banner on the front page.
- ___ The front page (index) has a centered table with six cells (three were merged).
- ___ You have four links. on your index page.
- ___ Each cell in your table links to another page you've made.
- ___ Each page has a back button (a *graphic*) linking back to the index page.
- ___ Each page has a "good amount" of information on it (Enough to be considered a good research source).
- ___ Each page has at least one photo or graphic on it.
- ___ You have a hit counter (Don't use the one within FrontPage)
- ___ You have at least one background image.
- ___ You have at least one background sound.
- ___ You have one scrolling marquee.
- ___ You have at least one "external" link on each page.
- ___ Every link is working.
- ___ Graphics and colors all go together on every page.

GRADING:

A+=16 of the above requirements, and published

A=15 and published

A-=14 and published

B+=12 or not published

B=11

B-=10

C+=8

C=7

C-=<7

APPENDIX T

SUPPLIES AND VENDORS

- Mousetraps (1 per student or pair of students)
- CO2 dragster kits (Pitsco, Kelvin, or Hearlihy)
- Metal casting equipment from www.miniaturemolds.com
- As many mini-lathes as you have room – and supplies - purchased from Penn State Industries (<http://www.psischools.com/p/t1.htm>). The Carba-TEC4 is a great model.
- *FrontPage* (or other Web design software) installed on each computer.
- *Stronghold* or *Stronghold 2* installed on each computer.
- The video, *Medieval Siege*, from NOVA.
- A PC golf game such as *Microsoft Links LS2003* or *Tiger Woods PGA Tour 2005* installed on each computer.
- CAD software like *TurboCAD* or *Autosketch* installed on each computer.
- 3D software like Ulead *Cool 3D* or *Xara3D* installed on each computer.
- Morphing software like *Morph Man 2000* or *Morpheus* installed on each computer.
- Makeover software like *Cosmopolitan Virtual Makeover*.