

Inventions (INVT) CTY Course Syllabus

Day	Time	What	How
Day 1 Mon	AM	<ol style="list-style-type: none"> Brain stimulation activity Identify past inventors & inventions Get to know each other. Complete CTY forms. Differentiate between a discovery and invention. 	<ol style="list-style-type: none"> Opening Shot Get to know an Inventor Introduce classroom routines Sign the CTY Honor Code and Lab Safety Contract Fill out <i>Interest Inventory</i> Play <i>Get to Know You Bingo</i> Complete "Discovery" and "Inventions" chart Complete <i>Can you name that ancient inventions?</i> worksheet
	PM	<ol style="list-style-type: none"> Identify past inventors & inventions Assess prior knowledge. Critical thinking challenge. 	<ol style="list-style-type: none"> Get to know an Inventor Take a pre-assessment Spaghetti Structures: How can I build the tallest structure out of spaghetti and gum drops that will support a ping pong ball?
	Homework		
<ol style="list-style-type: none"> Interview a parent, grandparent, or other adult about an invention that changed his or her life. For example, most adults over the age of 40 did not have a personal computer when they were children. The personal computer has had an impact on peoples' lives because it has made communication easier through the use of email. It has made researching information easier because of the Internet and search engines such as Google. It has allowed people to complete tasks such as bookkeeping, letter writing, and keeping records in a quick and timely manner. These have both a negative and a positive impact on peoples' lives. Ask the adult you interview to identify both positive and negative aspects of an invention that has changed his or her life. Read pages 12-20 in <u>Inventing Stuff</u>. Be prepared to discuss in class. You may want to take notes – but please, no writing or highlighting in the book. Daily Reflection: Reflect on what we did in class today. What did you enjoy most? What were you most surprised to learn? How can you apply what we did in class towards inventing? (Write at least a paragraph.) 			
Day 2 Tues	AM	<ol style="list-style-type: none"> Brain stimulation activity Identify past inventors & inventions Discuss how inventions have changed lives. Identify ways to invent. Use creative thinking skills Explore the inventions of Henry Ford 	<ol style="list-style-type: none"> Opening Shot Get to know an inventor Share family interviews Discuss SCAMPER. Give students items to use scamper to imagine new uses for. Assembly Line Activity w/INVT-A
	PM	<ol style="list-style-type: none"> Identify past inventors & inventions Introduce Simple Machines Identify simple machines through hands-on learning stations. 	<ol style="list-style-type: none"> Get to know an inventor View short video on simple machines. Complete activities at simple machine stations while identifying machines and their uses.

Day	Time	What	How
		Homework 1. Idea Diary Entry #1. Be prepared to share in class. 2. Read pages 6-13 in <u>The Kids' Invention Book</u> . Be prepared to discuss in class. 3. Complete "Invention Idea Survey". Interview three or more people (any age) to identify problems for which you could find a logical or reasonable solution. 4. Read pages 22-32 in <u>Inventing Stuff</u> . 5. Daily Reflection	
Day 3 Wed	AM	1. Field Trip: "Elementary Physics and the Mechanics of Seafaring" aboard the Star of India	Explore the concepts of motion, force, work, energy and the use of simple and complex machines in their real application aboard the Star of India.
	PM	1. Identify past inventors & inventions 2. Assess field trip. 3. Identify characteristics of good board games.	1. Get to know an inventor 2. Post field trip discussion. 3. Read "Building a Monopoly on Board Games". 4. Complete elements of games graphic organizer. 5. Create board game objectives and rules (must include trading cards).
		Homework 1. Read pages 36-45 in <u>The Kids' Invention Book</u> . Be prepared to discuss in class. 2. Read the provided biographies of three inventors. Create Inventor Trading Cards for them as discussed in class. Be prepared to share! 3. Find a picture of an object that is a simple machine or that incorporates a simple machine. You can use an image from the internet, a magazine, book, etc., or may draw one of your own. Bring it in to class to share. 4. Start working on your Invention Convention proposal. It is due on Friday (7/1). 5. Daily Reflection	
Day 4 Thurs	AM	1. Brain stimulation activity. 2. Identify past inventors & inventions 3. Review homework. 4. Explore gears and gear ratio 5. Apply concepts to how bikes work and best gear ratios.	1. Opening Shot 2. Get to know an inventor 3. Class discussion 4. Gear activity – Toy Shop 5. Examine bicycles past & present
	PM	1. Identify past inventors & inventions 2. Review homework. 3. Monitor progress on games.	1. Get to know an inventor 2. Share inventor trading cards. 3. Begin designing and creating board games.
		Homework 1. Read pages 38-48 in <u>Inventing Stuff</u> . Be prepared to discuss in class. 2. Complete your Invention Convention proposal. Due on Friday (7/1). 3. Start bringing in broken electrical devices (clock radio, telephone, computer, toaster, hair drier or other appliance). Also bring in tools to pull them apart. Tools will be returned, broken appliances will not! (Please make sure names are on tools.) 4. Daily Reflection	
Day 5 Fri	AM	1. Brain stimulation activity. 2. Identify past inventors & inventions 3. Review homework. 4. Monitor progress on board games, revising as necessary. 5. Next steps with invention	1. Opening Shot 2. Get to know an inventor 3. Class discussion 4. Work on board games. 5. Discuss proposals, next steps students need to take
	PM	1. Identify past inventors & inventions 2. Finish games boards.	1. Get to know an inventor 2. Test/play games with classmates.

Day	Time	What	How
	Homework <ol style="list-style-type: none"> 1. Read pages 14-23 in <u>The Kids' Invention Book</u>. Be prepared to discuss in class. 2. Work on getting materials for your Invention Convention materials list. 3. Idea Diary Entry #2. 4. Don't forget those broken electrical devices and tools! 5. Play your board game with a family member. Interview them afterwards and list three things they liked about your game, and three things that may need to be revised. 6. Daily Reflection 		
Day 6 Tues	AM	<ol style="list-style-type: none"> 1. Brain stimulation activity 2. Identify past inventors & inventions 3. Review homework 4. Learn about pulleys. 	<ol style="list-style-type: none"> 1. Opening Shot 2. Get to know an inventor 3. Class discussion 4. Pulley exploration
	PM	<ol style="list-style-type: none"> 1. Identify past inventors & inventions 2. Learn about levers. 3. Learn about Rube Goldberg 	<ol style="list-style-type: none"> 1. Get to know an inventor 2. Marshmallow catapults 3. Rube Goldberg biography & comics
	Homework <ol style="list-style-type: none"> 1. Read pages 24-35 in <u>The Kids' Invention Book</u>. Be prepared to discuss in class. 2. Work on designing and building your invention for the Invention Convention. 3. Daily Reflection 		
Day 7 Wed	AM	<ol style="list-style-type: none"> 1. Field trip: Fleet Science Center Scavenger Hunt 	<ol style="list-style-type: none"> 1. Students will go on a scavenger hunt using the museum exhibits to learn about inventions and topics related to our class.
	PM	<ol style="list-style-type: none"> 1. Identify past inventors & inventions 2. Review homework 3. Assess field trip. 4. RG machines 	<ol style="list-style-type: none"> 1. Get to know an inventor 2. Class discussion 3. Compare scavenger hunt notes. 4. Construct RG paper machines
	Homework <ol style="list-style-type: none"> 1. Idea Diary Entry #3. Be prepared to discuss in class. 2. Continue working on your invention for the Invention Convention. 3. Daily Reflection 		
Day 8 Thurs	AM	<ol style="list-style-type: none"> 1. Brain stimulation activity 2. Identify past inventors & inventions 3. Review homework 4. Continue with R.G. activity 	<ol style="list-style-type: none"> 1. Opening shot 2. Get to know an inventor 3. Class discussion 4. Construction of R.G. machines.
	PM	<ol style="list-style-type: none"> 1. Identify past inventors & inventions 2. Continue w/ R.G. activity 	<ol style="list-style-type: none"> 1. Get to know an inventor 2. Continue w/ RG activity
	Homework <ol style="list-style-type: none"> 1. Read pages 34-37 and 56-58 in <u>Inventing Stuff</u>. Be prepared to discuss in class. 2. Continue working on your invention. 3. Write a paragraph describing how the Rube Goldberg device you built worked. Explain which simple machines were used in the device. 		
Day 9 Fri	AM	<ol style="list-style-type: none"> 1. Brain stimulation activity 2. Identify past inventors & inventions 3. Review homework 4. Finish R.G. activity 5. Apply the principles of inventing by taking apart 6. Identify various electrical components common in household appliances 	<ol style="list-style-type: none"> 1. Opening shot 2. Get to know an inventor 3. Class discussion 4. Finish RG machines 5. Take apart a broke appliance and figure out how it works 6. Identify various electrical components, playing bingo

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	PM	<ol style="list-style-type: none"> 1. Identify past inventors & inventions 2. Learn about hovercrafts 3. Make a hovercraft 4. Test a large hovercraft 	<ol style="list-style-type: none"> 1. Get to know an inventor 2. Watch various video snippets on <ol style="list-style-type: none"> a. Inventor/history of hovercraft b. Hovercraft ideas for the future c. Hovercraft racing d. Hovercraft airplane 3. Ride on a hovercraft
	Homework		
<ol style="list-style-type: none"> 1. Bring in your invention model or prototype to share with the class. 2. Idea Diary Entry #4. 3. Daily Reflection 			
Day 10 Mon	AM	<ol style="list-style-type: none"> 1. Brain stimulation activity 2. Identify past inventors & inventions 3. Review homework 4. Share invention model / prototype. 5. Describe ways to name inventions. 	<ol style="list-style-type: none"> 1. Opening shot 2. Get to know an inventor 3. Class discussion 4. Students share inventions with peers and receive feedback. 5. Invention naming activity
	PM	<ol style="list-style-type: none"> 1. Identify past inventors & inventions 2. Understand electrical circuits 3. learn schematic drawings for circuits 	<ol style="list-style-type: none"> 1. learn about Thomas Edison 2. Video snippet on make-up of batteries, atoms, and flow of electrons in circuits 3. build electrical circuits
	Homework		
<ol style="list-style-type: none"> 1. Finish up any Invention Convention related work as needed. 2. Read pages 59-61 and 64-67 in <u>Inventing Stuff</u>. 3. Daily Reflection 4. Idea Diary Entry #5 			
Day 11 Tuesday	AM	<ol style="list-style-type: none"> 1. Brain stimulation activity 2. Identify past inventors & inventions 3. Review homework 4. Learn how to market an invention 5. Students understand difference between patent & trademark 	<ol style="list-style-type: none"> 1. Opening shot 2. Get to know an inventor 3. class discussion 4. Set up your tri-fold display 5. Discussion on patent / trademarks. 6. Fill out patent application
	PM	<ol style="list-style-type: none"> 1. Identify inventors of light bulb 2. Electrical circuits wrap-up 3. apply knowledge of circuits 	<ol style="list-style-type: none"> 1. view PPT of bulb creators 2. label parts of light bulb 3. reading/building circuit schematics 4. create a flashlight
	Homework		
<ol style="list-style-type: none"> 1. Read pages 68-69 in <u>Inventing Stuff</u>. 2. Finish up any Invention Convention related work as needed. 3. Daily Reflection 4. Idea Diary Entry #6 5. Read additional information about patents 6. Bring a shoe box for burglar alarm. 			
Day 12 Wed	AM	<ol style="list-style-type: none"> 1. Brain stimulation activity 2. Identify inventors & inventions 3. Review homework 4. Final preparation for Invention Convention 	<ol style="list-style-type: none"> 1. Opening shot 2. Get to know an inventor 3. Class discussion 4. Finish display boards
	PM	<ol style="list-style-type: none"> 1. Identify inventors & inventions 2. Use inventor skills to create electrical devices. 	<ol style="list-style-type: none"> 1. Get to know an inventor 2. Create a burglar alarm.

Day	Time	What	How
		Homework 1. Idea Diary Entry #7 2. Bring in your final invention to class tomorrow. 3. Daily Reflection	
Day 13 Thurs	AM	1. Brain stimulation activity 2. Identify inventors & inventions 3. Review homework 4. Learn/build solar powered cars	1. Opening shot 2. Get to know an inventor 3. Class discussion 4. Watch short snippets on how solar powered cars work 5. Build solar cars
	PM	1. Learn about electromagnets 2. Reflect on CTY experience. 3. Use inventor skills to create electrical devices	1. Create electromagnets 2. Post-assessment. 3. Student evaluations 4. Wrap up burglar alarms
		Homework 1. Daily Reflection 2. Practice your Invention Convention spiel 3. Idea Diary Entry #8	
Day 14 Fri	AM	1. Brain stimulation activity 2. Identify inventors & inventions 3. Review homework 4. Set up for Invention Convention 5. Learn about Bernoulli's principle	1. Opening shot 2. Get to know an inventor 3. Class discussion 4. Take inventions to MPR 5. Paper airplanes, Bernoulli bags, balloon helicopters
	PM	1. Review information learned in class 2. Share inventions!	1. Invention Jeopardy 2. Invention Convention 3. Closing Ceremonies