

Waynesburg University TPS Unit Outline



Title of Learning Center: Benjamin Franklin

Subjects: Language Arts, Math, Science, Social Studies, Enrichment

Grade Level/Range: 4-6

Overarching Goal or Concept for the Learning Center:

In this unit, students will observe, discuss, analyze and evaluate the life, inventions, and accomplishments of Benjamin Franklin.

Overview:

The Learning Center is set up to allow learners to investigate important facts about Benjamin Franklin. The students will also have the opportunity to participate in hands-on activities to strengthen their overall comprehension of the topic. After students explore Benjamin Franklin's inventions using pictures and books, students in small groups will create their own inventions and present them to the class when they are finished. Students will work together to create a timeline of Benjamin Franklin's life, including his accomplishments and contributions. The students will experience, learn and enjoy the same math concept that Benjamin Franklin used, and nearly perfected, unlike any person had done before.

Written By: Lindsay Ames, Regis Rogel, Carly Schubert, Ashley Wood

Date: October 2011

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Title of Lesson/Activity #1: Benjamin Franklin: Language Arts/Social Studies

Created By: Lindsay Ames

Overview of Lesson:

In this Language Arts and Social Studies Learning Center, students will be exposed to new information about the many contributions of Benjamin Franklin. Students will activate prior knowledge to generate new ideas about Benjamin Franklin and the history of the United States. Students will also have the opportunity to view several media sources to further their knowledge of Benjamin Franklin. Students will use reading and writing strategies to create their own literacy works using some of the facts that they learn at the Center.

PRE-INSTRUCTIONAL PLANNING

PA Standards:

History Standards:

5.1 Principles and Documents of Government

5.1.U.D:

Compare and contrast the basic principles and ideals found in significant documents:

- Declaration of Independence
- United States Constitution
- Bill of Rights
- Pennsylvania Constitution

8.1 Historical Analysis and Skills Development

8.1.U.C:

Analyze, synthesize and integrate historical data, creating a product that supports and appropriately illustrates inferences and conclusions drawn from research.

Language Arts Standards:

1.1 Reading Independently

1.1.3.C:

Use meaning and knowledge of words across content areas to develop a reading vocabulary.

1.1.4.D:

Demonstrate comprehension/ understanding before, during and after reading on grade level texts through strategies such as retelling, summarizing, note taking, connecting to prior knowledge, supporting assertions about text, and non-linguistic representations.

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Investigative Question for this activity:

How would you write the Declaration of Independence, the Constitution, or the Bill of Rights differently today?

Objective(s):

- The student will develop and use new vocabulary relevant to topic.
- The student will activate prior knowledge to generate new ideas about Benjamin Franklin.
- The student will analyze and interpret important historical documents.
- The student will use reading and writing strategies to create a personal document.

Materials:

Laptop
STUDENT DIRECTIONS sheet
STUDENT RESPONSE SHEET
VOCABULARY worksheet
HISTORICAL DOCUMENTS booklet
WE THE PEOPLE worksheet
Stickers

Online Collections/Exhibits/Websites:

Video: <http://www.5min.com/Video/Benjamin-Franklin-Biography-120001981>

For use on "We the People Worksheet:

<http://www.usconstitution.net/constamnotes.html>

<http://www2.scholastic.com/browse/article.jsp?id=4697>

Student Learning Process:

Description of each step	Key Instructional Discussion Questions	Inquiry Cycle Action
1. Students will follow directions on the separate sheet available in the Language Arts folder of the learning center.		
2. Students will find and look at the images titled "[Benjamin Franklin]" and "[Franklin signing the Declaration of Independence]". They are paper clipped to the STUDENT DIRECTIONS sheet.	What is it?	wonder

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<p>3. Students will fill out the appropriate columns on the STUDENT RESPONSE SHEET. They will write a description of the picture in column A (each blank space in for a different image), what they KNOW or think they KNOW about the corresponding image in column B, what they WANT to know about the corresponding image in column C, and they will leave column D blank until later in the center.</p>	<p>What do you know about what's happening in this picture? What do you think you know, but might need to clarify? What else do you want to know about this picture? What is this a picture of? Who are these men? What are the people in the picture doing?</p>	<p>Wonder</p>
<p>4. Students will complete the VOCABULARY SHEET provided in the learning center folder.</p>	<p>What do these words mean to you? Have you seen them before?</p>	<p>Investigate</p>
<p>5. Now that students have been introduced to some of the important terms for the center they will write down any new ideas they have generated on the STUDENT RESPONSE SHEET in the appropriate box.</p>	<p>Did seeing these words help you think of any new ideas? Did you remember something about the pictures?</p>	<p>Construct</p>
<p>6. Students will be directed to go to the provided laptop at the center. They will click on the tab in the taskbar called "Benjamin Franklin Biography" and watch a short, 5 minute film on the life of Benjamin Franklin.</p>	<p>How is Benjamin Franklin related to the pictures from the beginning of the center? What contributions did Benjamin Franklin make?</p>	<p>Investigate</p>
<p>7. Next, students will view a booklet about the creation of The Declaration of Independence, The Articles of Confederation, The Constitution, The Bill of Rights and Ben Franklin's involvement.</p>	<p>How does this information relate to the images you looked at in the beginning of the center?</p>	<p>Investigate</p>
<p>8. Students will go back to the STUDENT RESPONSE SHEET and complete column D. They will write down facts that they learned about the pictures that they viewed in the first step of the learning center.</p>	<p>What did you learn? What will you write in column D of the STUDENT RESPONSE SHEET?</p>	<p>Construct</p>
<p>9. Last, students will complete a literary work on the sheet titled WE THE PEOPLE using the facts that they just learned. Students will use the provided checklist to ensure they followed the</p>	<p>What would you include in these documents today? Why?</p>	<p>Express Connect</p>

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necessary guidelines.		
10. Students will pick out a sticker for their great work!		

Closure:

Final drafts of WE THE PEOPLE sheets will be mounted on decorative paper, presented to the class and displayed in the room.

Modifications/Accommodation Techniques for Students with Special Needs:

Teacher generated answers on STUDENT RESPONSE SHEET

Teacher generated answers on VOCABULARY SHEET

Pair students together or put in small groups

Assistive technology when necessary (Head phones for lap top, larger screen print, etc.)

Student choice between 4 options on WE THE PEOPLE worksheet to ensure a variety for all abilities

Formal Assessment:

Checklist of requirements for completed WE THE PEOPLE literary work

Completed STUDENT RESPONSE SHEET

Completed VOCABULARY SHEET

Informal Assessment

Teacher will observe student participation at the learning center

Teacher will make sure that students are following the necessary steps and completing the appropriate work

Teacher will also make sure that students are using the lap top appropriately and not using it for irrelevant purposes

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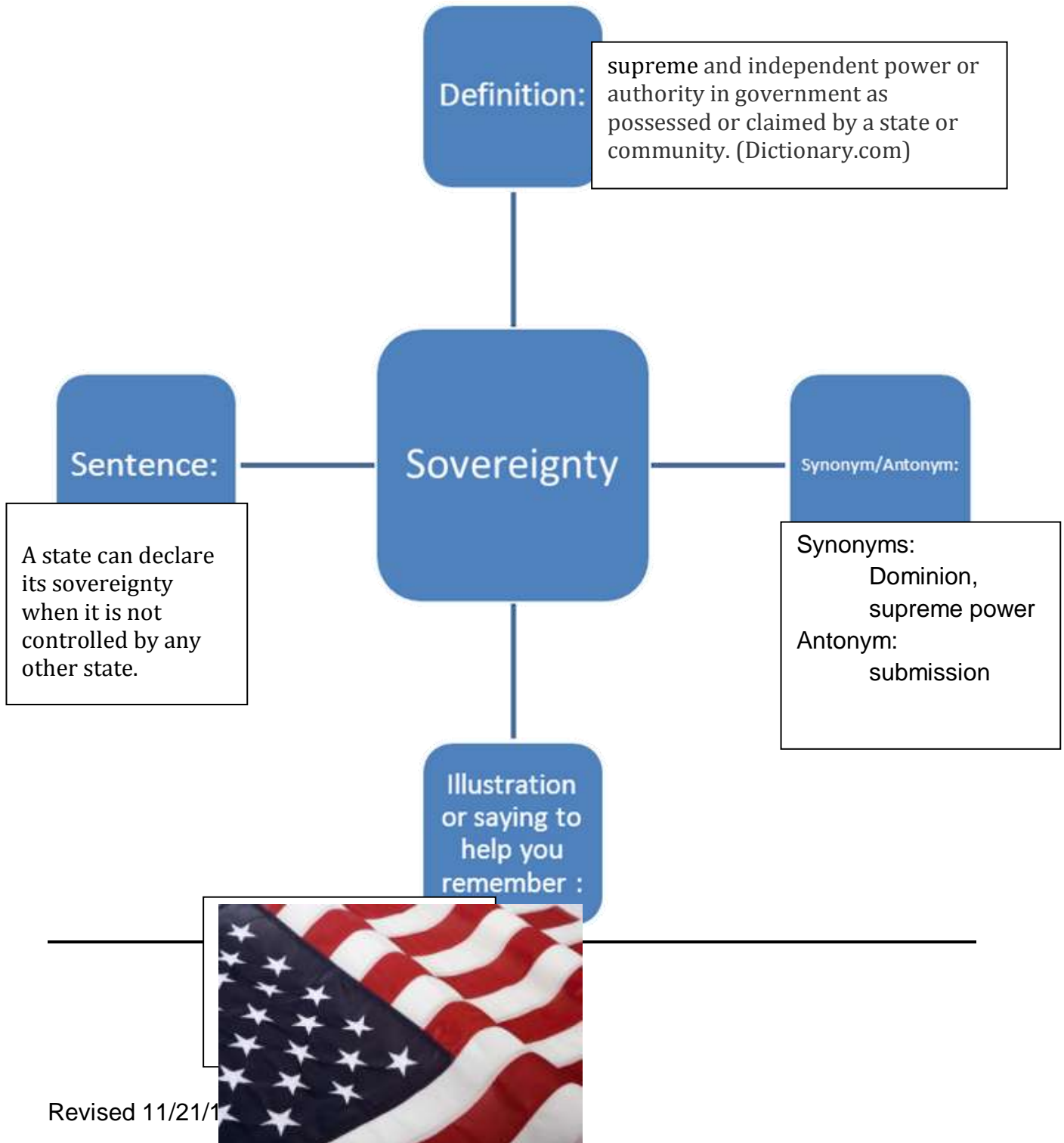
Student Directions Sheet

1. There are 2 images paper clipped to this sheet. Take them off of the paper clip and look at them closely for a few moments.
2. Find the STUDENT RESPONSE SHEET and write your responses in the following columns:
 - A) Description of the Picture: write what you see, who you see, what they are wearing, what they are doing, and anything else you can think of about the picture.
 - B) what you KNOW: write any information you know or think you know about the picture. You can write when it took place, who is in the picture, etc.
 - C) what you WANT to know: write down any questions you have about the picture. What aren't you sure of? What information would you like to learn about the picture?
 - D) what you LEARNED: you do not need to write anything just yet in this box, keep it blank for later in the center.
3. Find the worksheet called VOCABULARY SHEET to learn some important words and what they mean. Follow the directions on the sheet.
4. Now that you have been introduced to some important words for this lesson, do you think you know what is happening in the pictures you viewed at the beginning of the center? Write your response on your STUDENT RESPONSE SHEET in the space titled "Response to VOCABULARY SHEET:".
5. Go to the laptop. Click on the link on the taskbar labeled "Benjamin Franklin Biography" and watch the short film by clicking the play button.
6. Write 1 or 2 important facts that you learned about Benjamin Franklin on the STUDENT RESPONSE SHEET in the space provided called "Response to video".
7. Now read the booklet in the folder titled "Historical Documents".
8. Go back to your STUDENT RESPONSE SHEET and finish column D, "what you LEARNED"
9. Find the worksheet called WE THE PEOPLE and follow the directions.
10. Pick out a sticker for your hard work!

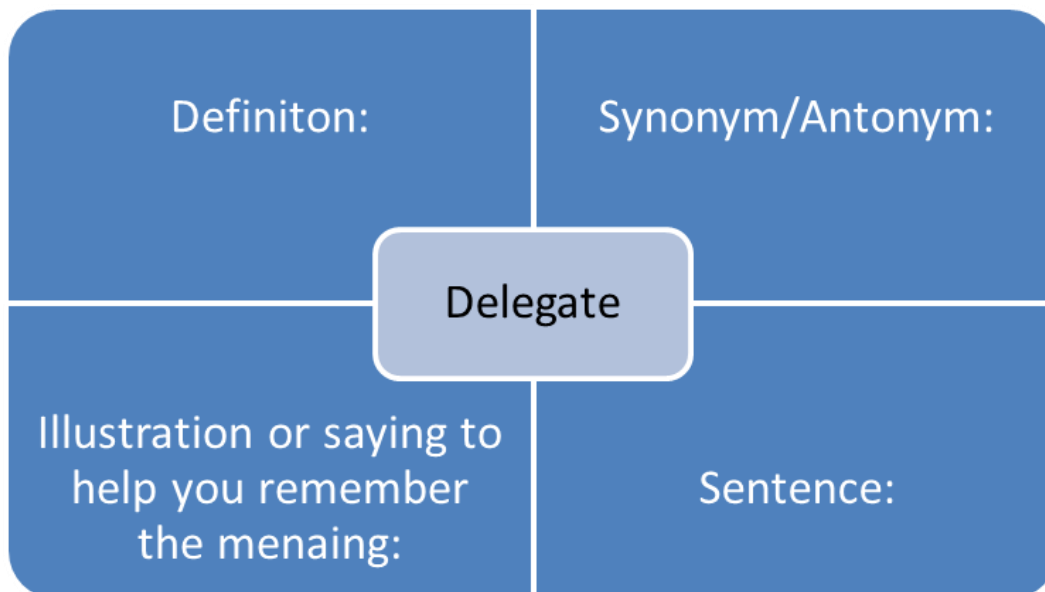
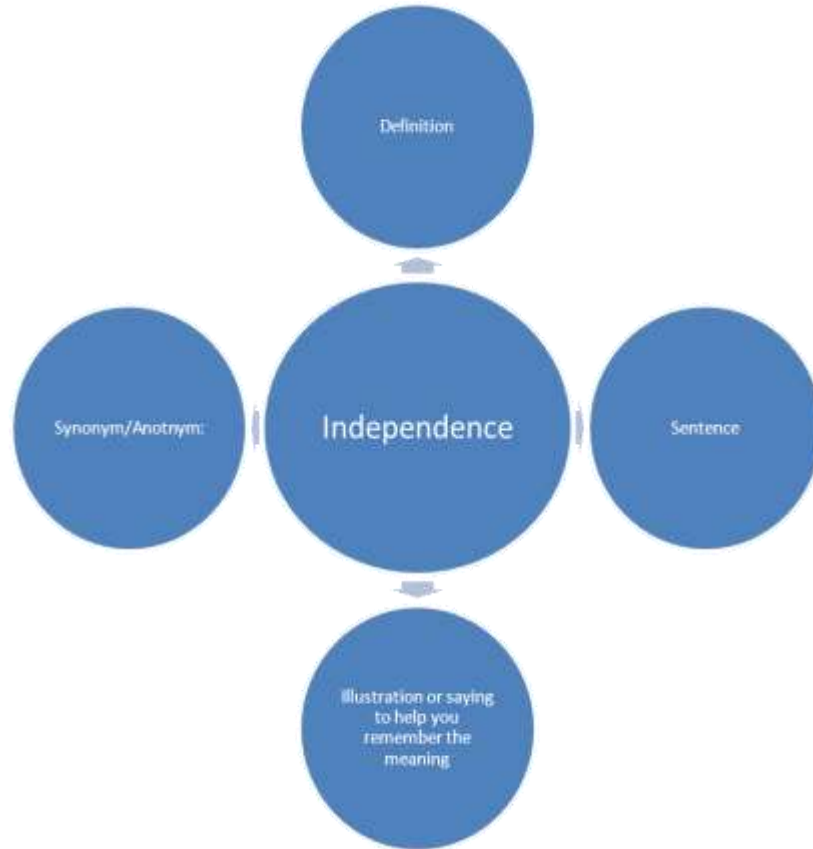
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VOCABULARY SHEET

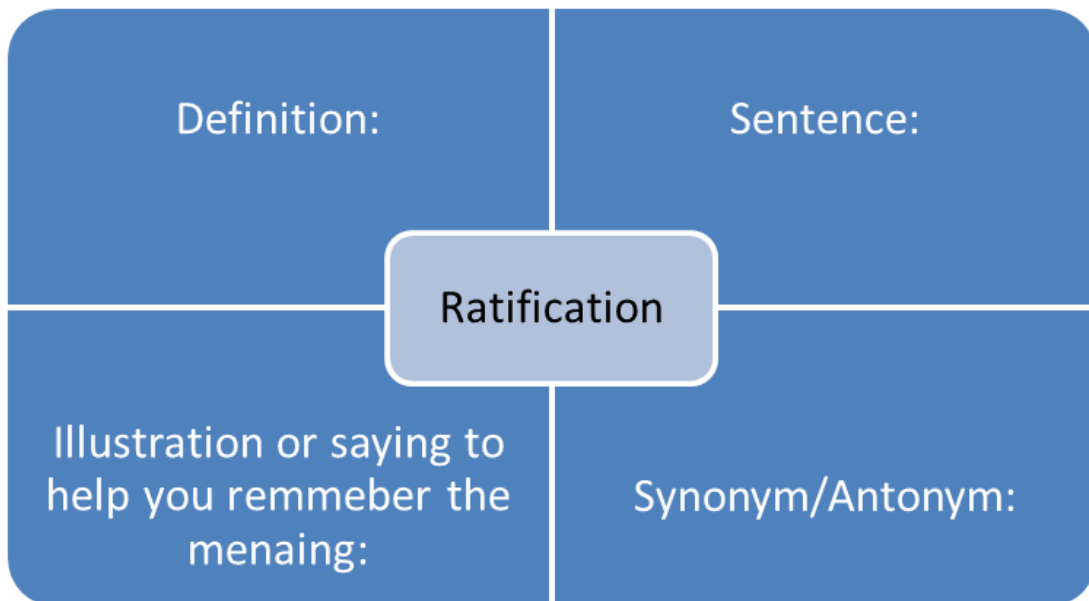
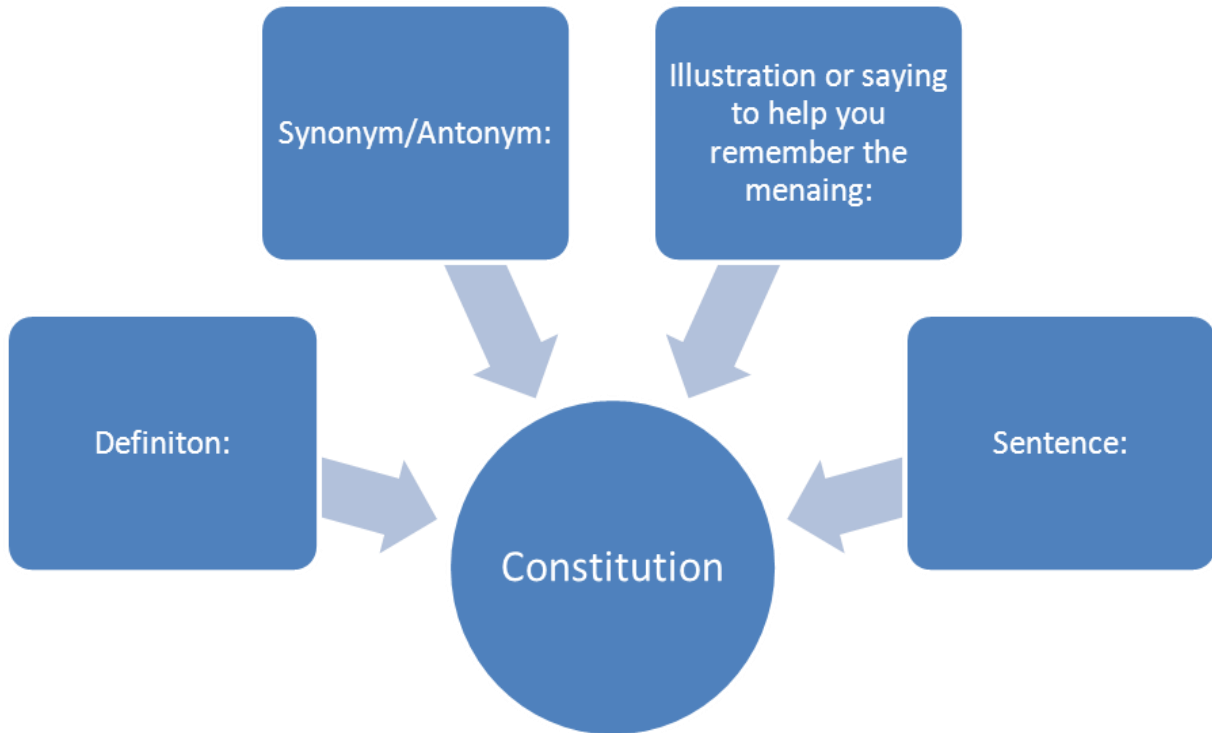
Directions: Use a dictionary, thesaurus, or encyclopedia website on the laptop provided to complete the missing boxes for each of these vocabulary words. Just write your responses next to the appropriate text box. The website dictionary.com is a good place to start! The first word is done for you.



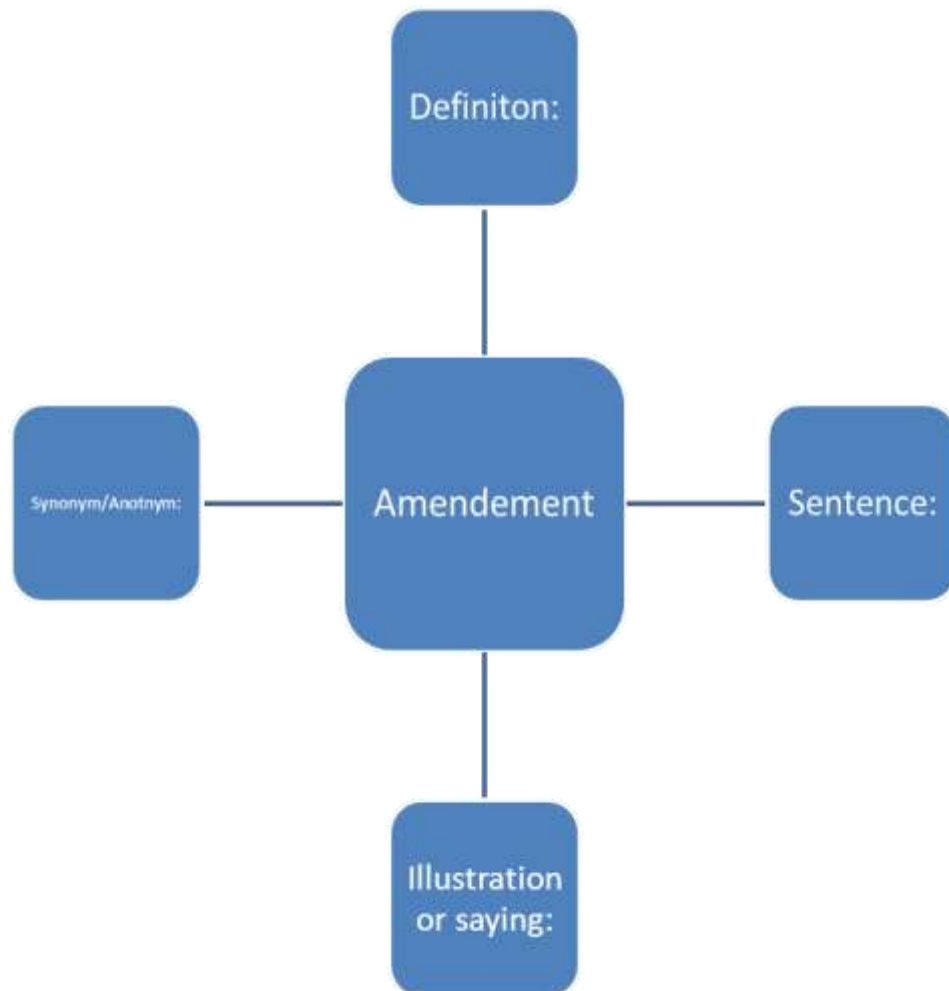
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We the People...

Directions: Choose one of the options below to complete. Write your responses on the bottom and the back of this sheet.

Option #1: Think about the rights that you have as an American citizen today. Are there any other rights that you would like to add to The Constitution? What about your right to bring your pet to school with you every day? Or the right to vote while under the age of 18? You can be silly, or serious, just be sure to justify your response with a reason you feel this way. Be creative and use your imagination! Write your response in complete sentences on the bottom and back of this page. Use the vocabulary that was introduced earlier in the lesson.

Option#2: Create a song, poem, rap or short stanza about Benjamin Franklin's involvement in the founding of our nation. You can include facts about his life, his inventions, contributions and his involvement in writing the important documents that established our government. Your response should be no longer than 5 or 6 phrases. Include some of the vocabulary that was introduced earlier in the lesson.

Option#3: Write a letter, e-mail or text message to Benjamin Franklin congratulating him on all of his accomplishments. Be sure to include his involvement in the founding of our nation. Your response should be no more than 5 or 6 sentences. Make sure to indicate if it is a letter, e-mail or text message. Use some of the vocabulary you learned earlier in the lesson.

Option#4: Visit the following websites on the laptop provided (will be open as tabs on the task bar) to research the rest of the amendments to The Bill of Rights. Create a graphic organizer for one of the amendments that you find interesting. Include the name of the amendment, the date it was ratified, why it was added, who was involved, other important terms related to the amendment and why you think it was important. You can include an illustration if you like.

- <http://www2.scholastic.com/browse/article.jsp?id=4697>
- <http://www.usconstitution.net/constamnotes.html>

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Checklist for “We the People” literary work:

Option #1:

- Creation of one original right
- Complete sentences
- Creativity
- Justification of right
- Use of vocabulary

Option #2

- Creation of an original poem, song, rap, or stanza
- Use of facts and other relevant information
- Includes facts about Ben Franklin’s involvement in the founding of the country
- Creativity
- Use of vocabulary

Option #3

- Creation of an original letter, e-mail, or text message to Benjamin Franklin
- Use of complete sentences
- Use of facts and other relevant information
- Creativity
- Use of vocabulary

Option #4

- Creation of an original graphic organizer describing one of the later amendments to the Constitution
- Use of facts and other relevant information
- Reason why you think it is important or interesting
- Use of an Illustration (not required)
- Use of vocabulary or important terms from the websites

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Student Response Sheet

<u>A) Description of the Picture</u>	<u>B) What you KNOW</u>	<u>C) What you WANT to know</u>	<u>D) What you LEARNED</u>
Image 1			
Image 2			

Response to VOCABULARY SHEET:

Response to video:

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Title of Lesson/Activity #2: Enrichment: Art/Social Studies

Created By: Lindsay Ames, Regis Rogel, Carly Schubert, Ashley Wood

Overview of Lesson:

Students will investigate the individuals featured on American currency and why they were chosen to be on the bills. Students will be responsible for creating a replica of a one hundred dollar bill (because Benjamin Franklin is on the bill) using a mosaic or puzzle form.

PA Standards:

History Standards

8.1 Historical Analysis and Skills Development:

8.1.3.B: Identify fact, opinion, multiple points of view, and primary sources as related to historical events.

8.1.3.C: Conduct teacher guided inquiry on assigned topics using specified historical sources.

8.3 United States History

8.3.4.B: Locate historical documents, artifacts, and places critical to United States history.

8.3.4.C: Explain how continuity and change in U.S. history have influenced personal development and identity:

Belief systems and religions

Commerce and industry

Technology

Politics and government

Physical and human geography

Social organizations

Art Standards

9.1 Production, Performance and Exhibition of Dance, Music, Theatre and Visual Arts

9.1.3.D: Use knowledge of varied styles within each art form through a performance or exhibition of unique work.

9.1.12.A: Know and use the elements and principles of each art form to create works in the arts and humanities.

Elements:

Dance: • energy/force • space • time

Music: • duration • intensity • pitch • timbre

Theatre: • scenario • script/text • set design

Visual Arts: • color • form/shape • line • space • texture • value

Investigative Question for this activity:

Why is Ben Franklin featured on the one hundred dollar bill?

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Objectives:

After viewing the provided primary sources about Benjamin Franklin's life, the students will activate background knowledge by writing down what they know and what they think they know about Benjamin Franklin.

After learning important facts about Benjamin Franklin's life, the students will communicate and interpret their ideas using written response.

The students will use their imagination and their creativity to create their own portion of a one-hundred dollar bill in honor of Benjamin Franklin.

Materials:

Student direction sheet

Art supplies (markers, crayons, scissors, glue, pencils, etc.)

Laptop with website already loaded

Print Sources:

<http://www.loc.gov/exhibits/treasures/franklin-printer.html>

Online Collections/Exhibits/Websites:

To be used for an extension activity:

<http://www.newmoney.gov/education/default.htm>

<http://www.fi.edu/franklin/economst/economst.html>

<http://www.fi.edu/franklin/>

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Student Learning Process:

Description of each step	Key Instructional Discussion Questions	Inquiry Cycle Action
1. Students will be provided with a set of directions to follow while at the Benjamin Franklin Learning Center. Students will follow the directions in order and complete the necessary assignments before moving on to the next center.		
2. To activate background knowledge and spark student's interests, students will view an image of Benjamin Franklin, as well as two images of the historical currency from the American Treasures Box. His name should not appear on the page.	Who is this?	Wonder
3. Ask students to write down what they know about the man in the picture on the provided paper.	Who is this man? What is he doing? What do you know about him? What does the picture tell you about him? What would you like to know about him?	Wonder
4. Have the students read a short article describing the man in the picture and answer the corresponding questions.	Who is Benjamin Franklin? Did learning his name help you remember anything about him? What did he do? Invent? Contribute?	Investigate
5. Show an image of a one hundred dollar bill. Show pictures of other U.S. bills (one dollar bill, five dollar bill, ten dollar bill, etc).	What is this? What is it used for? Have you ever seen one? How are these different from the one hundred dollar bill? How are they the same? Why are these men featured on U.S. currency?	Wonder

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6. Students will then read another short paragraph describing the men featured on the U.S. bills. The paragraph will also include why Benjamin Franklin is included on the front of a bill even though he was not a U.S. president.	Why is Benjamin Franklin on the one hundred dollar bill if he wasn't a President? Who decided who is put on the bills?	Investigate
7. Students will then pick a small square from the provided envelope.	What is this? What do you think we are going to do?	Wonder
8. Students will be supplied with a variety of art materials (crayons, markers, paint, paper, etc.).		
9. Students will recreate the small square they were given on a larger piece of paper (computer paper works just fine). Allow students the freedom to choose what medium they will use. Encourage them to use different colors, not just money green.	What are you going to use to recreate your square? What is your favorite art medium to use?	Express
10. Extension: If time permits, have students go to http://www.newmoney.gov/education/default.htm to design their own bill.	What would your bill look like? Why?	Construct

Closure:

After several students have completed the center and the assigned art project, the teacher will put the works together to display the larger, student created hundred dollar bill.

Modifications/Accommodation Techniques for Students with Special Needs:

For students with reading or writing difficulties:

- Teacher will provide student with a pamphlet of important information, including pictures
- Teacher can pair student with a partner to help with writing responses
- Teacher could assign a video to watch instead of reading several paragraphs

Formal Assessment:

Teacher will assess and evaluate completed Student Direction Sheet
Teacher will assess and evaluate completed art project

Informal Assessment:

Teacher will informally assess the completed Student Direction Sheet to ensure that students appropriately participated in the Learning Center

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Student Directions for Art Lesson

Directions: Read each of the directions and answer the following questions in the spaces provided. You do not have to answer in complete sentences, but please make sure that your ideas are clear and well developed. Have fun!

1. View the 3 images paper clipped to this sheet. Answer the following questions.

Write your answers in the space provided.

What are these images of?

Who is this man?

How do you think these pictures are related?

What time period do you think these images are from?

What would you like to know about these pictures?

Write your responses here:

2. Read the 3 short articles about Benjamin Franklin titled "Benjamin Franklin: Glimpses of the Man", "Economist" and "Benjamin Franklin: In His Own Words" (only read the highlighted portion of this article). Answer the following questions.

Write your answers in the space provided.

Who is Benjamin Franklin?

Did learning his name help you remember anything about him?

What did he do? Invent? Contribute?

Write your responses here:

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3. Look at the images of U.S. currency (money). Pay special attention to the \$100 bill that features Benjamin Franklin. Answer the following questions. Write your answers in the space provided.

What is this?

What is it used for?

Have you ever seen one?

How are the other bills different from the one hundred dollar bill?

How are they the same?

Write your responses here:

4. Read the article called "Presidents on Money". You only have to read the highlighted portion and down (small segment in the middle of the first page and last fourth of the first page, and the entire second page). Answer the following questions in the space provided.

Who decided who is put on the bills?

Why are these men featured on U.S. currency?

Why is Benjamin Franklin on the one hundred dollar bill if he wasn't a President?

Write your responses here:

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Title of Lesson/Activity #3: Benjamin Franklin, Inventor Extraordinaire: Science

Created By: Ashley Wood

Overview of Lesson:

In groups of three or four the students will go to the center. It will last at least 30 minutes. First the students will look at a poster with pictures of Benjamin Franklin's inventions. Then the students will read a story about Benjamin Franklin's inventions. After that the students will write down what the inventions that they read about and saw were. As a group the students will share what inventions they remember from the story with each other. Then as a group they will use the various materials that I will supply to create their own inventions. When they finish their inventions they will share them with the rest of the class. This will take place after each group of students has completed the center.

PA Standards:

Social Studies Standard:

8.4.4.C: Explain how continuity and change in world history have influenced personal development and identity.

- Belief systems and religions
- Commerce and industry
- Technology
- Politics and government
- Physical and human geography
- Social organizations

Science Standard:

S4.A.1.3: Recognize and describe change in natural and human-made systems and the possible effects of those changes.

Reference: 3.1.4.C, 3.1.4.E, 4.7.4.B, 4.8.4.A, 4.8.4.C

Investigative Question for this activity:

What are some of Benjamin Franklin's inventions?

Objective(s):

The students will be able to read a story and recall what they read to make a list of Benjamin Franklin's inventions.

The students will work together to create an invention.

The students will be able to share their inventions with their classmates.

Materials:

Poster with pictures of inventions
Book
Markers

Paper
Pencils
Various art materials

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Student Learning Process:

Description of each step	Key Instructional Discussion Questions	Inquiry Cycle Action
1. To activate background knowledge the students will look at the poster with pictures of Benjamin Franklin's inventions.	What do you see on the poster?	Connect Wonder
2. The students will be able to learn more about Benjamin Franklin and his inventions by reading a book called Benjamin Franklin by Ingri & Edgar Parin d'Aulaire	What did you learn about Benjamin Franklin in the book you just read?	Investigate
3. The students will write down Benjamin Franklin's inventions and then share what they wrote with one another.	What inventions did you write down?	Construct
4. A paper will be at the center to explain the group activity.	Do you understand what the activity is asking you to do?	Express
5. Then as a group of three or four depending on the class size the students will start working on their inventions.	What are you going to do as a group to make your invention in a cooperative manner?	Construct
6. During the activity the teacher will observe the students working together and help them in any way they may need.	Do you have any questions about what you are suppose to be doing?	Construct

Closure:

After the activity is over the student will share their inventions with the other groups. What did your group invent? How did you decide what to invent? Did you have any disagreements about the invention?

Modifications/Accommodation Techniques for Students with Special Needs:

Special needs students will be assigned to groups with stronger students so they can guide them.

Formal Assessment:

A scoring rubric will be used for the requirements of the invention. The rubric will include creativity, cooperativeness, appealing to the eye, is it realistic, ect.

Informal Assessment

Students will be observed during the activity and assessed on participation during the activity and how well the group worked together.

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Title of Lesson/Activity #4: Putting Benjamin Franklin's Life in Perspective: Social Studies

Created By: Rege Rogel

Overview of Lesson:

Ben Franklin's assistant dropped the pieces of the timeline he was creating in order to display in sequential order, some of the great accomplishments Benjamin Franklin was able to obtain. It is up to you (the student(s)) to place the pieces/events of the timeline in correct order that they occurred. This is a great way for everyone to notice some of the great things Benjamin Franklin has contributed to society and in the correct order in which they occurred. At the end, draw a simple picture for three occurrences to help aid you in remembering what those certain events are.

PA Standards:

8.2.5.B: Illustrate concepts and knowledge of historical **documents, artifacts**, and places critical to Pennsylvania history.

8.2.5.C: Differentiate how continuity and change in Pennsylvania history are formed and operate.

8.3.4.C: Explain how continuity and change in U.S. history have influenced personal development and identity.

M4.E.1.2.2: Translate information from one type of display to another

Investigative Question for this activity:

Are you able to place pieces of Benjamin Franklin's life in the correct order to assure that we all do not forget what he did for the United States?

Objective(s):

Students will be able to notice the significance Benjamin Franklin plays in our history.

Students will be able to piece together, in sequential order the events available about Ben Franklin

Students will create a visual drawing to help symbolize three of the events to help them remember what the certain three events were in a visual way.

Materials:

- The Velcro Timeline
- The Autobiography of Benjamin Franklin By Benjamin Franklin

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Student Learning Process

Description of each step	Key Instructional Discussion Questions	Inquiry Cycle Action
1. Brief Review of our Prior Ben Franklin Lessons	Did the class learn from the past unit?	Connect
2. Give Students the timelines with pieces of accomplishments.	Are they about material we previously covered	Wonder
3. Have students begin placing the accomplishments in correct order.	Ask me to check when you are finished to look over for any errors	Wonder/Investigate
4. If cleared, have students glue or tape the accomplishments in the correct order in the corresponding space		Investigate/ Construct
5. Pass out blank papers and have students sketch 3 drawings to symbolize any 3 accomplishments of their choosing	Is there extra time remaining?	Construct/Express
6. If time remaining, let the students color the pictures		Express
7. Have the students glue or tape the pictures above or below the correct section of the timeline where it is perfectly across from the accomplishment it goes with.	Is the visual the students created actually going to help them remember what that particular accomplishment is?	Reflect

Closure:

Talk about how many inventions Ben Franklin has had and what he has contributed to society. Ask some questions to prompt discussion with class and get them to verbalize how something Franklin has done has affected them in this day and age.

Modifications/Accommodation Techniques for Students with Special Needs:

Students will be allowed to work in pairs, so the highest achieving students can be paired with the lowest achieving students for collaboration.

Formal Assessment: Students will be assessed on timelines and the pictures they create.

Informal Assessment: The students will be monitored and the teacher will go around and check and clear timelines before gluing/taping stage. The teacher will also observe and ask questions to evaluate whether students can effectively communicate their opinions during this activity.

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Title of Lesson/Activity #5: Benjamin Franklin: Math Magician

Created By: Carly Schubert

Overview of Lesson:

The students will observe and discuss a photo of Benjamin Franklin and his amazing “magic squares”. The students will examine and discuss the relationship between the numbers within the chart or “magic square.” The students will determine which numbers fit within the blank spaces according to the relationship they determined to be true.

PA Standards:

Mathematics:

2.1.5.A: Apply number patterns to count and compare values of whole numbers, fractions, and decimals.

M5.A.1.2: Demonstrate understanding of place value of whole numbers and decimals.

M5.A.1.3: Compare quantities or magnitudes of numbers.

M5.A.1: Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems

History:

8.3.5.B Illustrate concepts and knowledge of historical documents, artifacts, and places critical to United States history.

Investigative Question for this activity:

What did Benjamin Franklin contribute to mathematics and why was it so unique?

Objective(s):

After observing and discussing the picture of Benjamin Franklin, the students will:

- Brainstorm and hypothesize what Benjamin Franklin did in his “spare” time that helped contribute to mathematics.
- Research, discuss, and interpret Benjamin Franklin’s contribution to mathematics.
- Experiment with the magic squares.

Materials:

Magic Squares Worksheet
Magic Square Fractions Worksheet
Magic Square Game

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Online Collections/Exhibits/Websites:

<http://www.math.wichita.edu/~richardson/franklin.html>

<http://www.mathpages.com/home/kmath155.htm>

<http://www.worksheetworks.com/puzzles/magic-squares.html> (worksheet generator)

<http://quasistoic.org/fun/magicsquare/all.html> (4x4 position starter sheet/ answer key for game)

Student Learning Process:

Description of each step	Key Instructional Discussion Questions	Inquiry Cycle Action
1. To activate their background knowledge, the students will observe a picture of Benjamin Franklin and discuss and write down their ideas about what it is they believe he was doing in his picture.	What do you notice? What does he have in his hand? What do you think he did in his free time when he wasn't inventing?	Wonder
2. The students will then read the handout on magic squares and Benjamin Franklin's magic squares.	What did he do that was so impressive?	Investigate
3. The students will discuss his contribution to mathematics amongst each other.		Construct
4. The students will observe Benjamin Franklin's magic squares.	What patterns do you notice?	Connect
5. The students will try to fill in a 3x3 magic square together.	How difficult did you find this to be? How difficult do you think it was to create a 16x16 magic square? Especially without any technological help?	Wonder
6. The students will break into even teams. They will read the directions on the game.	Can you participate and follow the directions?	
7. The students will then compete against one another filling in larger magic squares.	Do they all add up to the same number?	Express

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8. The students will then attempt to fill in the worksheet on magic squares.	What is different about these magic squares? Were they more difficult without using whole numbers?	Investigate Express
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Closure:

After working on their own magic squares, the students will review Benjamin Franklin's magic square. They will examine and discuss the sum of the large square and check some of the columns and rows to make sure they add up to the proper sum. The students will discuss how they believe Benjamin Franklin finished his square and about how long he worked on it. The students will then take the last worksheet that has a very large magic square on it and work on it for homework.

Modifications/Accommodation Techniques for Students with Special Needs:

Students with special needs can work collaboratively with other students. Another option would be to allow them to use a calculator.

Formal Assessment:

Magic square worksheet
Magic square fraction worksheet

Informal Assessment

The teacher will observe and answer any questions that may arise during the students' time at this center. The teacher will detect whether students are fully participating and following directions properly.

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The Magic Square Game

Rules and Regulations:

You are about to compete with your fellow classmates in trying to filling your magic squares the fastest. In doing so, you must obey the following rules:

- **No shouting.** Keep your voices low, low enough so the other team cannot hear your answers.
- **Take turns.** You are a team, you should use all of your resources and that includes all of your teammates.
- **Work together.** Everyone should contribute and everyone should check one another's work.
- When you are finished, grab the jumbo dice in between the two groups *silently*.
- As a whole group, including both teams, everyone will **check** the magic square.

Directions

Setup

Break into even teams. Each team will have 1 board and will start with the same numbers filled in and the same blank spaces. The dice should be placed directly in the middle of the 2 groups so each has an equal opportunity to grab the di when finished.

1. Start both boards with the same numbers already filled in (base these off of the starting positions sheet)
2. Help your teammates to fill in the blank squares with the appropriate numbers so that all of the rows, columns, and diagonals add up to the same sum.
3. Once finished and double checked, grab the di in the middle of the table.
4. Have both teams check the work.
5. To replay, look at the starting positions sheet and set both boards up again to play again.

Post-instruction Assessment

Student Questionnaire Post Learning Center







1. What did you think about this learning center? Was it fun, boring, interesting, please tell us how you feel?
2. What did you like most about the learning center? Explain.
3. What did you like least about the learning center? Explain.
4. Name one thing you learned about Ben Franklin and how you could use this information in the future.

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Bibliographic Organizer of Library of Congress Sources

Name of Learning Center Unit:		
Created by: Lindsay Ames, Regis Rogel, Carly Schubert, Ashley Wood		
Date: September 2011		
Thumbnail Image	Document Title, Author/Creator, Date	Library of Congress URL
Lesson #1: Benjamin Franklin: Language Arts/Social Studies		
	[Benjamin Franklin] c[between 1900 and 1920]	Detroit Publishing Company Photograph Collection http://hdl.loc.gov/loc.pnp/det.4a28534
	[Detail from: Currier and Ives] The Declaration Committee New York, 1876 Lithograph.	Print and Photographs Division (8) Http://www.loc.gov/exhibits/declaration/images/committ.jpg
	Benjamin Franklin Plan for a Confederation, July 21, 1775 Annotated document	Manuscript Division (17) http://www.loc.gov/exhibits/treasures/images/bf0017s.jpg
Lesson #2: Benjamin Franklin Enrichment: Art/Social Studies		
	50a - Front of Bill Franklin and Hall [shillings]; Hall and Sellers [dollars] Paper currency, various amounts and dates	Manuscript Division (50a- http://www.loc.gov/exhibits/treasures/images/bf0050ap1s.jpg



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	<p>50a - Reverse of Bill</p> <p>Franklin and Hall [shillings]; Hall and Sellers [dollars]</p> <p>Paper currency, various amounts and dates</p>	<p>Manuscript Division (50a-f)</p> <p>http://www.loc.gov/exhibits/treasures/images/bf0050ap2s.jpg</p>
	<p>50c - Front of Bill</p> <p>Franklin and Hall [shillings]; Hall and Sellers [dollars]</p> <p>Paper currency, various amounts and dates</p>	<p>Manuscript Division (50a-f)</p> <p>http://www.loc.gov/exhibits/treasures/images/bf0050cp1s.jpg</p>
	<p>50c - Reverse of Bill</p> <p>Franklin and Hall [shillings]; Hall and Sellers [dollars]</p> <p>Paper currency, various amounts and dates</p>	<p>Manuscript Division (50a-f)</p> <p>http://www.loc.gov/exhibits/treasures/images/bf0050cp2s.jpg</p>
	<p>Benjamin Franklin</p> <p>c[between 1900 and 1920]</p>	<p>Detroit Publishing Company Photograph Collection</p> <p>http://hdl.loc.gov/loc.pnp/det.4a26115</p>
<p>Lesson #3: Benjamin Franklin, Inventor Extraordinaire: Science</p>		
	<p>[Benjamin Franklin]</p> <p>c[between 1900 and 1920]</p> <p>Detroit Publishing</p>	<p>Company Photograph Collection</p> <p>http://hdl.loc.gov/loc.pnp/det.4a28534</p>
	<p>Benjamin Franklin</p> <p>An Account of the New Invented Pennsylvania Fire-Places.</p> <p>Page 1</p> <p>Philadelphia: Printed and Sold</p>	<p>Rare Book & Special Collections Division (35)</p> <p>http://www.loc.gov/exhibits/treasures/images/bf0035s.jpg</p>

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	<p>Benjamin Franklin to George Whatley (ca. 1709-1791), May 23, 1785 Letterpress manuscript</p>	<p>Manuscript Division (36) http://www.loc.gov/exhibits/treasures/images/bf0036s.jpg</p>
	<p>Benjamin Franklin. Experiments and Observations on Electricity, made at Philadelphia in America, By Benjamin Franklin. Page 2 London, Printed for David Henry, 1769</p>	<p>Rare Book & Special Collections Division (37A) http://www.loc.gov/exhibits/treasures/images/bf0037ap2s.jpg</p>
	<p>L'Armonica: Lettera del Signor Beniamino Franklin al Padre Giambatista Beccaria, Regio Professore di Fisica nell' Univ. di Torino. Page 2 [Milano?:1776?]</p>	<p>Rare Book & Special Collections Division (43) http://www.loc.gov/exhibits/treasures/images/bf0043s.jpg</p>
<p>Lesson #4: Putting Benjamin Franklin's Life in Perspective: Social Studies</p>		
	<p>Benjamin Franklin (1706-1790) "Join, or Die" Page 1</p>	<p>Woodcut from the Pennsylvania Gazette, Philadelphia, May 9, 1754 Serial & Government Publications Division (2) http://www.loc.gov/exhibits/treasures/images/bf0002p1.jpg</p>
	<p>Benjamin Franklin (1706-1790) "Join, or Die" Page 2</p>	<p>Woodcut from the Pennsylvania Gazette, Philadelphia, May 9, 1754 Serial & Government Publications Division (2) http://www.loc.gov/exhibits/treasures/images/bf0002p2.jpg</p>

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Lesson #5: Benjamin Franklin: Math Magician		
	[Ben Franklin]. [between 1900 and 1915]	Detroit Publishing Company Photograph Collection http://hdl.loc.gov/loc.pnp/det.4a27557
	B. Franklin of Philadelphia L.L.D. F.R.S./ M. Chamberlin pinxt. ; E. Fisher fecit. Fisher, Edward 1730-ca. 1785, engraver (between 1763 and 1785)	Prints & Photographers Division (32) http://www.loc.gov/pictures/item/2003674083/