Smallpox

Betsy Lambert
Miscoe Hill School
Grades 6-8
Unit Overview

As students work through the activities in this unit they will develop their skills as history detectives and learn about the history of Small Pox disease prevention and control, as they answer the question, “Why was the broadside, ‘Is Your Child Vaccinated…’ created?” They will study the image along with a selection of primary and secondary sources to develop a document based, informed response to the question. Students will gain insight into some of the ways people have tried to prevent the spread of Smallpox.

The varied learning experiences are designed to activate and utilize many of the students’ multiple intelligences, while providing intellectual challenges at multiple levels of cognitive complexity.

Modifications for English language learners and/or special education students include, but are not limited to providing:

1. Glossary of unfamiliar words found in the texts
2. Handwriting chart(s) to help transcribe script
3. Print out of completed transcription
4. Highlighted print out of longer sections of reading
5. Simplified or restructured Activities assigned
6. Bi-lingual dictionary or phrase book
7. Graphic organizer for use as a pre-writing tool for the final project

Standards addressed

Rhode Island Grade Span Expectations for Civics & Government and Historical Perspectives GLE/GSE 5 (5-8)– 1, 2

Rhode Island Grade Span Expectations for Reading GLE/GSE (5-8)- 7, 8, 15

Rhode Island Grade Span Expectations for Written and Oral Communication GLE/GSE (5-8)- 6,7,8

Massachusetts History and Social Science Curriculum Framework US History I, 1 and 2 World History I, 1

Massachusetts Comprehensive Health Frameworks 8

Massachusetts Curriculum Frameworks, The Arts Disciplines: Visual Arts  2
Objectives

- Students will be able to demonstrate understanding of the smallpox, the course of the illness, how it spreads, health care procedures implemented, historic attempts to halt the spread, inoculation and immunization. The documents and activities contained in this unit are intended to help students better understand the history of disease management.

- Students will be able to demonstrate an understanding of how the movement of earth’s people fosters interconnection and has consequences, including the impact on the spread of disease. Students will act as historians by answering historical questions, evaluating sources of information and making inferences based on documents from Rhode Island and world history.
Index

Step-by-Step Instructions 5

Activity #1 Smallpox is brought to the Americas 6

Activity #2 John Brown’s Inoculation 8

Activity #3 Letter to John from Abigail Adams 10

Activity #4 Edward Jenner and Cowpox 13

Activity #5 Final Project 14

Minimum Requirements, Sources 16

Additional Reference Materials 17
Step-by-Step Instructions

Materials Needed: Large index cards, Broadside, ‘Is Your Child Vaccinated?’
http://www.loc.gov/pictures/resource/cph.3f05173/.

Length of lesson: 180 minutes minimum

1. Hand out large index card to the class. Before projecting the broadside, tell the class that they will observe the image silently then sketch it onto the blank side of the card (silently) for three minutes. Artistic skill is not important, the goal is to observe the image closely and note the use of color, shapes, text and fonts.

2. After the three minutes of observation, ask the students to stop and discuss the image as graphic communication. What is the visual center of interest and what design elements did the artist use to create that emphasis? Why is one word italicized and no other? Why is the question mark unusually large? Why is only one word red? Why are some words placed on an angle while everything else is on a horizontal plane? What is the artist communicating about the message through these visual choices?

3. After the discussion, instruct the students to turn their index cards over and take three minutes to write their reflections and observations about the broadside on the back.

4. Tell the students that their job is to individually, or with partners, develop a hypothesis in response to the question, “Why was this image created?” They will use teacher-provided external evidence in the form of primary documents to refine their hypothesis.

5. Tell students that the instructor will assess their work on this project using the guide below.

   Student – follows directions, seeks clarification when needed
   Master – follows directions, seeks clarification when needed, presents findings and/or tackles problem with interest in the larger goal
   Scholar – follows directions, asks questions when something is not clear, presents findings and/or tackles problems with interest in the larger goal; passes along his/her skill and knowledge

6. Set up centers with the materials needed for activities #1-5. At each, include a copy of the Smallpox Fact Sheet provided by the Centers for Disease Control and Prevention. http://emergency.cdc.gov/agent/smallpox/overview/disease-facts.asp

7. Students move through each center, completing activities #1-5 and saving their work.

8. Students work independently on their final project, Activity #6.
Activity #1: Smallpox is brought to the Americas


Instruct students to read the Codex translation and the broadside of the slave transaction, then follow the instructions detailed below:

The ‘Florentine Codex image and text, and the Broadside advertising the sale of African slaves both relate ways in which smallpox was inadvertently introduced to the Americas. Read the text associated with both documents, then answer this set of questions for each document:

1. Who produced this document?
2. What was occasion – what was going on that led to the production of this broadside? When and where was it produced?
3. Who was the audience to whom this piece was directed? What were there concerns?
4. What was the purpose of this broadside? What did they hope to achieve?
5. What is the subject of this document? What is the main point?

Reflection: What were some of the benefits and costs of mixing cultures? Site specific examples from these documents to relate costs or benefits to the Spanish, Colonists, Native Americans and Africans.
“Before the Spaniards appeared to us, first an epidemic broke out, a sickness of pustules. It began in Tepeihuitl. Large bumps spread on people; some were entirely covered. They spread everywhere, on the face, the head, the chest, etc. [The disease] brought great desolation; a great many died of it. They could no longer walk about, but lay in their dwellings and sleeping places, no longer able to move or stir. They were unable to change position, to stretch out on their sides or face down, or raise their heads. And when they made a motion, that called out loudly. The pustules that covered people caused great desolation; very many people died of them, and many just starved to death; starvation reigned, and no one took care of others any longer.

On some people, the pustules appeared only far apart, and they did not suffer greatly, nor did many of them die of it. But many people’s faces were spoiled by it, their faces and noses were made rough. Some lost an eye or were blinded.

The disease of pustules lasted a full sixty days; after sixty days it abated and ended. When people were convalescing and reviving, the pustules disease began to move in the direction of Chalco. And many were disabled or paralyzed by it, but they were not disabled forever. It broke out in Teotlco, and it abated in Panquetzaliztli. The Mexica warriors were greatly weakened by it.

And when things were in this state, the Spaniards came, moving towards us from Tetzcoco. They appeared from the direction of Quauhtitlan and made a halt at Tlacopan. There they gave one another assignments and divided themselves. Pedro de Alvarado was made responsible for the road coming to Tlatelolco. The Marqués considered the Tenochca great and valiant warriors.”

Note: The website above credits: Fray Bernardino de Sahagún. Florentine Codex. From James Lockhart, We People Here: Nahuatl Accounts of the Conquest of Mexico, Repertorium Columbianum, UCLA Center for Medieval and Renaissance Studies (Los Angeles: University of California Press, 1993).
Activity #2: John Brown’s Inoculation

Materials needed: writing paper, chart to fill in, print outs of the following manuscripts, found in the Rhode Island Historical Society, Henry R Chace Papers
MSS 338 box 3 folder 16 Notes Smallpox 156-64

Document A (two images)
May 31, 1764 letter from John Brown to his brothers.
Page 1 Innocation at Boston Neck, himself and 65 others under care of dr.
Page 2 Dr Branet(sp?) inoculated 770 people, lost 7, pill regimen, well cared for

Document B (two images)
June 10, 1764 letter John Brown to brothers
Page 1 describes symptoms
Page 3 almost ready to come home, will be careful not to carry smallpox

Document C
Loose papers:
John Brown on his way home from inoculation hospital at Point Shirley, writes letter to his wife on June 18, 1764. Washed self from top to bottom with rum to avoid carrying smallpox home (Gertrude Kimball copy)

Document D
Inside of folded page dated 1763 David Wilkerson at top, inside: David Wilkerson sheriff 1751 or 1757 small pox warrant to parade street to warn all and read smallpox law signed by gov and judges and justice of the peace 185 acts of gen assembly relation to smallpox published in street

Students may share the work of transcribing each document with others, but must create their own final copy of the transcription of each document.
Said this is to advise you that I am very well, as I shall be inoculated at the George Tavern in Boston Neck at half past eight o'clock this afternoon, by Dr. Jos. Gardner, who is concerned with Dr. Merril ... here is now on the point of recovery, and all persons under immediate suspicion were inoculated at home by Mr. Farmer before they came here, but they principally came right here from Marsh Head; Salmon 93, &c. 9 were inoculated here. There is not one man in the whole number but what that is so well as to go out of doors every day; ... they only complain once in a while of the Head ake ... Ridley Russell has by spells a considerable of a Fever upon him but is very hearty and for the most part very well.

Here is one Capt. Brown of Salem that tells me that he came lately from the Rise of Logan in a large ship with about 160 Hides of Leather. The ship and cargo belonged to Salem. It was bound there, but slept at Nantucket, told the Collector that he wanted to enter his vessel and cargo and clear her out for Salem, which the Collector would not do, but that he Brown had her entered by Capt. Collector with salt from Turks Island and cleared her out for Cape Bay, then he proceeded home to Salem, housed out his cargo in the Port and then sent the vessel immediately to back to Cape with the aforesaid Clearance. Now desire whether we could not have a ship come from Holland in to Nantucket & then enter her from any place we please with salt or other goods & clear her out to go for a load of Borden taking the Holland goods in to a northern vessel then fitting the same vessel up with Head Matter in the Fall and Clear the same as a whole load of Head Matter for Rhode Island and
John Brown

Shirley letter 1764

left the ship from Holland and go after her boards or other thing, which
when get clear for Rhode Island.

I think it may easily be done, if you should have a mind to
send the ship for Brothers Avery Voyage I Desire that the same
may not be retarded on set of my Absence for I do assure
you that Whatever Voyage you please to fit her shall give me the
gratest satisfaction I shall be Extremely obliged to you for your
Trouble in fitting out my part it will lay me under an Obligation of
barring you in curn pater Rumesness. . . . . I have wrote to
brother Job Smith to advise him to In large his Distill House as I
think it probable we shall want more Rum then Can get without
by our possible come in. . .

Dr Barnet has told me that he has Innegarated 7700 persons
in all and that he has lost only 7 persons out of the whole number

June 1st 6 o'clock in the morning I have taken 5 Pills and
2 powders 3/4 one pill Tuesday Night 1 powder Wednesday Morning
and at night one pill Thursday Morning 2 pills and at night one pill
this morning 1 powder & Shall have 2 pills more to take. I have as yet
taken the powders 1 pill much better than I expected the latter I
make 1 pill into a little Creamery or apple. The pills to be taken
to work off the Mercury is the worst they are to be taken
after the pill is taken The Point is a very Delicate place
the house we are in is very Good & have good Attendance
Indeed Fater. At least we have promised a much better place
for the Business

[Signature]

This letter is too long to copy.
John Brown to
Dear Brother,

I continued very well without any pain or Throat till last Tuesday. I began to feel the Headache which increased fast. I flung myself on the Bed & lay there Three or Four Hours then I found myself very weak. While I had the Throat or me about 48 Hours & then they left me well. I may eat Butter, Beef, Brisket, Mutton, or what you may assure yourself that I shall take Care to none of these to excess. Indeed I have no Occasion for it. Indeed you will please to assure that I am quite as Fatt as well as I was when I left home. Mr. Wm. Russell has kept his bed these three days & has all along been very well. Exclusive of his Sickness as to the Season of the year for Inflammation so much talked of at Providence, the Summer is as good or better than any other Time. Especially for this place for I believe there Can't be a Cooler place found in N E where there is the least Bruth of Air stirring on the Water we have a fresh Breezy Thames the Salty of the Ocean we are at & on a hill there is Near by, and it's as pleasant Walking round about the Pond as any Man can desire. I think I wrote you that Dr. Barneal was concerned with four other Doctors but I never knew in what proportion till yesterday & I believe no other patient knows it at all.
John Brown Point shirly letter 1764
of the Post as no doubt by that time I shall be near about going to Boslon if I should not be there till Tuesday which will be 3 weeks from when I first Come here. I had Rather have there the how there than not as there is good keeping & not Deer, you need not fear of my hurrying home to fast but may Assure your selves I shall take all the precautions I am Master of so as not to carry the Small pox home. I will send word before I Come home. So as Brother Moses may meet me With a Shift of Cloth, tho I have a Boat Jacket &icker of the Most of my Linnen. Now in Boslon at a house were the Infection has not bin * * * * You'd write soon I had better go Teculleet Bridge or the Upper Ferry * * * * * *

Mean Ralch Mr Russell Mr Bowen hands their Compliments to you all Ralch and Barren goes to Boslon in a few days T. B

I have smoked this and all the inclosed well Since which it hath bin a near no Infection T.B
John Brown, on his way home from the inoculation hospital at Point Shirley, wrote to his wife as follows:

"Boston, June 18, 1764.

"Sally, I desire you to have ready by to-morrow next, my Life, Cold Coat, up." Blanket, Jacket, wig, Hat, Shoes, Stockings, Drawers, Shirt &c. to send to me at the Ferry, as I am determined not to wait any thing Home, that I carry from Boston, all the

I think there is but little or no danger, the Consequences would be such if I should carry the Small pox homewards, that I am determined to take all precautions that lays in my power. I have this day Washed my Self from top to Bottom with Rain & purpose to do it again before I
Come home

John Brown

I hope James and Benjamin is well.

Dear Mr. Chase,

Here is a copy of the only letter I made a note of. I will see if I can rediscover John's letter to Nicholas giving an account of the treatment. I fear, however, that it is now snowed under, as it is all of three months since it was last visible to the naked eye.

Here's hoping, nevertheless.

Gertrude S. Kimball.

June 16.
Document D
(RHi X17 491)

181 182 185 224.90 314 23 344
397 439. 688. 711 803. 1246-47
8087 3588 5814 4044 4834
14448 5767 5605 15058 15089 13332

#181

David Mckinnon Sheriff 1757
Small Pop warrant
To parade street to warn all and
read Small Pop how signed
by Govt. Judges and Judges of the
Peace

185 act of Gen Assembly relating
to Small Pop published in streets
1757

David Mckinnon and John Aflur
witness to bond. John Burton
1753 to overseer of Poor. Many abbot
Single woman dau of Daniel Abbot Jr.
Declared a jenral child.

290 Execution for David Mckinson
that John Hoyt Died. Obtained 7/36 18 40
1756
Using only the four documents given, complete the chart (short answer).

<table>
<thead>
<tr>
<th></th>
<th>Document A</th>
<th>Document B</th>
<th>Document C</th>
<th>Document D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of document:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>personal letter, notes,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>manuscript, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Date of document</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Is this a copy or the original?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Author of document (if signed)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Person document is addressed to</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Location of author (if stated)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Location of recipient (if stated)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Answer the following questions (minimum of three sentences):

Why was each document produced? What was the author’s purpose in creating it? What is the main idea or subject of each document? What is the author’s tone or attitude toward this topic? List three or more ways the people in Rhode Island in the eighteenth century tried to stop the spread of smallpox. Based on the dates of his letters, how long was John Brown away from home due to the smallpox inoculation?
Activity #3: Letter to John from Abigail Adams

Students can divide up the task of transcription, then create their own complete copy of the text of the letter. When their transcriptions are complete, they are to respond to the questions which follow.

FYI: A transcription from the Massachusetts Historical Society:

July 21 1776 Boston
I have no doubt but that my dearest Friend is anxious to know how his Portia does, and his little flock of children under the operation of a disease once so formidable.
I have the pleasure to tell him that they are all comfortable tho some of them of complaining. Nabby has been very ill, but the Eruption begins to make its appearence upon her, and upon Johnny. Tommy is so well that the Dr. innoculated him again to day fearing it had not taken. Charlly has no complaints yet, tho his arm has been very soar.
I have been out to meeting this forenoon, but have so many dissagreeable Sensations this afternoon that I thought it prudent to tarry at home. The Dr. says they are very good feelings.Mr. Cranch has passed thro the preparation and the Eruption is coming out cleverly upon him without any Sickness at all. Mrs. Cranch is cleverly and so are all her children. Those who are broke out are pretty full for the new method as tis call'id, the Suttonian they profess to practice upon. I hope to give you a good account when I write next, but our Eyes are very weak and the Dr. is not fond of either writing or reading for his patients. But I must transgress a little.
I received a Letter from you by wednesday Post 7 of July [John to Abigail, 07 July 1776] and tho I think it a choise one in the Litterary Way, containing many usefull hints and judicious observations which will greatly assist me in the future instruction of our Little ones, yet it Lacked some essential engriediants to make it compleat. Not one word respecting yourself, your Health or your present Situation. My anxiety for your welfare will never leave me but with my parting Breath, tis of more importance to me than all this World contains besides.

Page 2

The cruel Seperation to which I am necessatated cuts of half the enjoyments of life, the other half are comprised in the hope I have that what I do and what I suffer may be serviceable to you, to our Little ones and our Country; I must beseech you therefore for the future never to omit what is so essential to my happiness.

Last Thursday after hearing a very Good Sermon I went with the Multitude into Kings Street to hear the proclamation for independence read and proclaimed. Some Field peices with the Train were brought there, the troops appeard under Arms and all the inhabitants assembled there (the small pox prevented many thousand from the Country). When Col. Crafts read from the Belcona of the State House the Proclamation, great attention was given to every word. As soon as he ended, the cry from the Belcona, was God Save our American States and then 3 cheers which rended the air, the Bells rang, the privateers fired, the forts and Batteries, the cannon were discharged, the platoons followed and every face appeard joyfull.Mr. Bowdoin then gave a [illegible] Sentiment, Stability and perpetuity to American independance. After dinner the kings arms were taken down from the State House and every vestage of him from every place in which itappeard and burnt in King Street. Thus ends royall Authority in this State, and all the people shall say Amen.

I have been a little surprized that we collect no better accounts with regard to the horrid conspircy at New York, and that so little mention has been made of it here. It made a talk for a few days but now seems all hushed in Silence. The Tories say that it was not a conspircy but an association, and pretend that there was no plot to assasinate the General. Even their hardned Hearts Blush feel -- the discovery. We have in Gorge a match for a Borgia and a Catiline, a Wretch Callous to every Humane feeling. [illegible] Our worthy preacher told us that he believed one of our Great Sins for which a righteous God has come out in judgment against us, was our Biggoted attachment to so wicked a Man. May our repentance be sincere.

Monday morg. july 22

I omitted many things yesterday in order to be better informed. I have got Mr. Cranch to inquire and write you, concerning a French Schooner from Martineco which came in yesterday and a prize from Ireland. My own infirmities prevents my writing. A most
Excruciating pain in my head and every Limb and joint I hope portends a speedy Eruption and prevents my saying more than that I am forever Yours. The children are not yet broke out. Tis the Eleventh Day with us.

Answer each question and cite evidence from the text to support your answer:

1. Who is the author of this letter?
2. What is the date of this letter? What historic event did she observe? Does she support the declaration and actions which followed? What important medical procedure has the author and her children participated in? What are their symptoms? Using the reference chart provided, what stage would you place them at?
3. Who is the author writing to? What is their relationship?
4. What is the purpose of this letter? What is the emotional state of the author?
5. What are the main subjects of this letter? What information is she asking for?
Activity #4: Edward Jenner and Cowpox

Materials Needed: Writing paper, print out of two images:
http://www.loc.gov/pictures/resource/matpc.00822/  Smallpox, between 1898 and 1946,
http://www.loc.gov/pictures/item/92517511/
Hand of Gloucestershire milkmaid Sarah Nelmes showing cowpox blisters from which
Edward Jenner developed smallpox vaccination technique published 1798, reprinted

Students are to peruse the website of the Edward Jenner Museum set at his country estate
in Berkeley, Gloucestershire, England with particular note to the pages on Edward Jenner
titled: What is Smallpox and Jenner and Smallpox, found at:
http://www.jennermuseum.com/edwardjenner.html
In addition, students may want to watch the video created by children at Berkeley
Primary School and Rednock Secondary School.

Answer the following questions:

1. What virus causes Smallpox:
2. Define Variolation:
3. Describe the roles of Sarah, James, Jenner and the cow in the first vaccination:
4. Why did people opt to get cowpox rather than smallpox? Use the two images
   above to support your answer.
Activity #5: Final Project

Materials needed: Writing Paper, question list, rubric and printed copy of broadside, ‘Is your child vaccinated Vaccination prevents smallpox - Chicago Department of Health’(1941) found at: http://www.loc.gov/pictures/resource/cph.3f05173/

Students are to incorporate knowledge of the other documents studied in this unit to respond to the question “Why was the image, ‘Is Your Child Vaccinated..’ created?”

Students are to answer the following questions in a well written, thoughtful response:

- Who produced this image?
- Where and when was it produced?
- Who was the intended audience for this work?
- What was the purpose for creating this image – why was the message important?
- What message was the image created to communicate?

Students must support their response by referring to specific information and/or direct quotes taken from the image itself and each of the nine additional documents explored in this lesson.
Rubric for final project
Students respond individually to the question, “Why do you believe that the image, ‘Is Your Child Vaccinated?’ broadside was created?” In their well written, thoughtful response, they hypothesize:

Who produced this image
Where and when this was produced
Who the intended audience for this work was
What the purpose for creating this image was
What big idea(s) the image was created to communicate

Student support their response by referring to specific information and/or quotes taken from the image itself and the nine additional documents explored in this lesson.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Low Performance 1 point</th>
<th>At/below average 2 points</th>
<th>At/above average 3 points</th>
<th>Exemplary Performance 4 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response to Question</td>
<td>A somewhat well written, thoughtful response that answers four of the five questions.</td>
<td>A somewhat well written, thoughtful response that answers all five questions.</td>
<td>A well written, thoughtful response that answers all five questions in a general way.</td>
<td>An articulate, well reasoned, thoughtful response that articulately answers all five questions.</td>
</tr>
<tr>
<td>Effectiveness of the documents chosen to support the Response</td>
<td>The specific information and/or direct quotes from the image and nine additional documents loosely support the student’s response to the question.</td>
<td>The specific information and/or direct quotes from the image and nine additional documents somewhat support the student’s response to the question.</td>
<td>The specific information and/or direct quotes from the image and nine additional documents generally support the student’s response to the question.</td>
<td>The specific information and/or direct quotes from the image and nine additional documents effectively support and reinforce the student’s response to the question.</td>
</tr>
</tbody>
</table>

Score:
Minimum Requirements

In order to receive a passing grade on this unit, students must approach their work at the ‘student’ level or beyond, thoughtfully and thoroughly complete activities 1-4 and hand in all of their work receive, and earn a total of 4 points or higher on the final project.

Sources

Main image:
Activity #1: CHARLESTOWN, April 27, 1769’ at
http://www.pbs.org/wgbh/aia/part1/1h304.html Accessed on August 12, 2010
Activity #1: Image and translation of the Florentine Codex
http://www.globalrem.umn.edu/teachingmodules/disciplines/history.php?entry=136928
Accessed on August 15, 2010

Activity #2: Rhode Island Historical Society, Henry R Chace Papers
MSS 338 box 3 folder 16 Notes Smallpox 156-64

Activity #3: http://www.masshist.org/digitaladams/aea/cfm/doc.cfm?id=L17760721aa
http://www.masshist.org/digitaladams/


Activity #5: ‘Is your child vaccinated Vaccination prevents smallpox - Chicago Department of Health’(1941) found at:
## Smallpox Disease

<table>
<thead>
<tr>
<th>Incubation Period (Duration: 7 to 17 days)</th>
<th>Exposure to the virus is followed by an incubation period during which people do not have any symptoms and may feel fine. This incubation period averages about 12 to 14 days but can range from 7 to 17 days. During this time, people are not contagious.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not contagious</td>
<td>The first symptoms of smallpox include fever, malaise, head and body aches, and sometimes vomiting. The fever is usually high, in the range of 101 to 104 degrees Fahrenheit. At this time, people are usually too sick to carry on their normal activities. This is called the prodrome phase and may last for 2 to 4 days.</td>
</tr>
<tr>
<td>Initial Symptoms (Prodrome) (Duration: 2 to 4 days)</td>
<td>The first symptoms of smallpox include fever, malaise, head and body aches, and sometimes vomiting. The fever is usually high, in the range of 101 to 104 degrees Fahrenheit. At this time, people are usually too sick to carry on their normal activities. This is called the prodrome phase and may last for 2 to 4 days.</td>
</tr>
<tr>
<td>Sometimes contagious*</td>
<td>The first symptoms of smallpox include fever, malaise, head and body aches, and sometimes vomiting. The fever is usually high, in the range of 101 to 104 degrees Fahrenheit. At this time, people are usually too sick to carry on their normal activities. This is called the prodrome phase and may last for 2 to 4 days.</td>
</tr>
<tr>
<td>Early Rash (Duration: about 4 days)</td>
<td>A rash emerges first as small red spots on the tongue and in the mouth. These spots develop into sores that break open and spread large amounts of the virus into the mouth and throat. At this time, the person becomes most contagious. Around the time the sores in the mouth break down, a rash appears on the skin, starting on the face and spreading to the arms and legs and then to the hands and feet. Usually the rash spreads to all parts of the body within 24 hours. As the rash appears, the fever usually falls and the person may start to feel better. By the third day of the rash, the rash becomes raised bumps. By the fourth day, the bumps fill with a thick, opaque fluid and often have a depression in the center that looks like a bellybutton. (This is a major distinguishing characteristic of smallpox.) Fever often will rise again at this time and remain high until scabs form over the bumps.</td>
</tr>
<tr>
<td>Most contagious</td>
<td>A rash emerges first as small red spots on the tongue and in the mouth. These spots develop into sores that break open and spread large amounts of the virus into the mouth and throat. At this time, the person becomes most contagious. Around the time the sores in the mouth break down, a rash appears on the skin, starting on the face and spreading to the arms and legs and then to the hands and feet. Usually the rash spreads to all parts of the body within 24 hours. As the rash appears, the fever usually falls and the person may start to feel better. By the third day of the rash, the rash becomes raised bumps. By the fourth day, the bumps fill with a thick, opaque fluid and often have a depression in the center that looks like a bellybutton. (This is a major distinguishing characteristic of smallpox.) Fever often will rise again at this time and remain high until scabs form over the bumps.</td>
</tr>
<tr>
<td>Rash distribution:</td>
<td>A rash emerges first as small red spots on the tongue and in the mouth. These spots develop into sores that break open and spread large amounts of the virus into the mouth and throat. At this time, the person becomes most contagious. Around the time the sores in the mouth break down, a rash appears on the skin, starting on the face and spreading to the arms and legs and then to the hands and feet. Usually the rash spreads to all parts of the body within 24 hours. As the rash appears, the fever usually falls and the person may start to feel better. By the third day of the rash, the rash becomes raised bumps. By the fourth day, the bumps fill with a thick, opaque fluid and often have a depression in the center that looks like a bellybutton. (This is a major distinguishing characteristic of smallpox.) Fever often will rise again at this time and remain high until scabs form over the bumps.</td>
</tr>
<tr>
<td>Pustular Rash (Duration: about 5 days)</td>
<td>The bumps become pustules—sharply raised, usually round and firm to the touch as if there’s a small round object under the skin. People often say the bumps feel like BB pellets embedded in the skin.</td>
</tr>
<tr>
<td>Contagious</td>
<td>The bumps become pustules—sharply raised, usually round and firm to the touch as if there’s a small round object under the skin. People often say the bumps feel like BB pellets embedded in the skin.</td>
</tr>
<tr>
<td>Pustules and Scabs (Duration: about 5 days)</td>
<td>The pustules begin to form a crust and then scab. By the end of the second week after the rash appears, most of the sores have scabbed over.</td>
</tr>
</tbody>
</table>

---

Reference Materials

#1 Smallpox Fact Sheet Accessed August 15, 2010
http://emergency.cdc.gov/agent/smallpox/overview/disease-facts.asp
### Contagious

<table>
<thead>
<tr>
<th>Resolving Scabs</th>
<th>The scabs begin to fall off, leaving marks on the skin that eventually become pitted scars. Most scabs will have fallen off three weeks after the rash appears. The person is contagious to others until all of the scabs have fallen off.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contagious</td>
<td></td>
</tr>
<tr>
<td>Scabs resolved</td>
<td>Scabs have fallen off. Person is no longer contagious.</td>
</tr>
<tr>
<td>Not contagious</td>
<td></td>
</tr>
</tbody>
</table>

* Smallpox may be contagious during the *prodrome* phase, but is most infectious during the first 7 to 10 days following rash onset.

- Detailed book review of Pox Americana by Elizabeth Fenn  
  [http://molinterv.aspetjournals.org/content/3/6/344.full](http://molinterv.aspetjournals.org/content/3/6/344.full)
- Overview of smallpox exhibit at Brown  
  [http://www.brown.edu/Administration/News_Bureau/2002-03/02-017t.html](http://www.brown.edu/Administration/News_Bureau/2002-03/02-017t.html)