



Title: Don't Be Afraid to Make a Mistake

Grade Level: 5-8

Time Allotment: Three class periods of 50 minutes each

Overview: Through an interactive lesson involving video, internet, and presentations students will learn that inventors and scientists do not always get it right the first time. They make mistakes and revise before getting to a final product.

Subject Matter: Science, Social Studies, Language Arts

Learning Objectives:

Students will be able to:

- Give examples of black inventors and women inventors and what they invented.
- Give examples of mistakes made in science and how this can lead to better inventions.

National Standards:

Science: All students should develop abilities of technological design and understandings about science and technology.

Media Components:

- Videos: **Follow Your Dreams: The Bessie Coleman Story**
Look Up #2: Those Magnificent People in Their Flying Machines
- Website: **Whoops! Blunders and Mistakes of Science and Engineering**
<http://www.lhup.edu/~dsimanek/whoops.htm>

Materials:

Standard classroom supplies

Prep for Teachers:

Step 1: Bookmark the web site used in this lesson.

Step 2: Cue the videotapes used in this lesson.

Step 3: When using media, provide students with a **Focus for Media Interaction**, a specific task to complete and/or information during or after viewing of video segments, websites or other multimedia elements.

Introductory Activity: Advice from a teacher to Bessie Coleman helped shape Bessie Coleman's life and it also applies to everyone who keeps trying in order to achieve a goal.



Step 1: **CUE and START** the video **Follow Your Dreams** where Bessie is standing in front of the ironing board and tells about another of those teachers' most important lessons in life. This clip goes from 10:50 to 11:10 on the timer. *As a Focus for Media Interaction have students be able to state what the teacher thought was an important lesson in life.*

Step 2: **STOP** the video after Bessie states the lesson.

Step 3: The teacher's lesson was "Don't ever be afraid to make a mistake, 'cause you learn more from your mistakes than being right. That's one answer you won't get wrong the next time it's asked".

Step 4: This advice was followed by early airplane designers. **CUE and START** the video **Look Up #2: Those Magnificent People in Their Flying Machines** where a man is holding small gliders while standing on a hill and then Imagination appears to say "An important thing for inventors to remember is to keep trying". This clip goes from 8:45 to 10:15 on the timer. *As a Focus for Media Interaction have students be able to describe early attempts at flying machines.*

Step 5: **STOP** the video after the old pictures of flying machines.

Step 6: Discuss early attempts at flying machines and how these designs have led to designs for airplanes that have flown successfully. Ask students what would have happened if these inventors had just given up after their first attempts. Would we have airplanes to fly in now?

Learning Activity: Bessie Coleman lists a lot of inventions by black inventors in her video.

Step 1: **CUE and START** the vide **Follow Your Dreams** where Bessie is standing in front of the table and gives a list of inventions. This clip goes from 36:00 to 36:28 on the timer. *As a Focus for Media Interaction have students be able to give at least two inventions by black inventors and tell how many total inventions have been invented by black inventors.*

Step 2: **STOP** the video after Bessie gives her list of black inventors and states that black inventors have invented 200 inventions.

Step 3: The list is as follows: potato chip, shoe lasting, golf tee, sugar refining process, curtain rod, dry cleaning, scrub boards, ironing board, steam engine, traffic signal, and blood plasma separating.

Step 4: Take students to the computer lab and go to the website **Whoops! Blunders and Mistakes of Science and Engineering** <http://www.lhup.edu/~dsimanek/whoops.htm>. This website give several mistakes in science. *As a Focus for Media Interaction have students give a least one mistake they found in science.*



Culminating Activity:

Step 1: Using the following websites as reference have students do a biography of a woman inventor or black inventor. This biography could take the form of a poster, a report, a computer presentation, a dramatization, etc. Within the biography have students state what difficulties their inventor had to face and if they made any mistakes leading up to their invention.

African American Inventors

<http://www.inventorsmuseum.com/africanam.htm>

4000 Years of Women in Science Biographies

<http://www.astr.ua.edu/4000WS/summary.shtml>

African American Inventors Database

<http://inventors.about.com/library/weekly/aa020600a.htm>

African American Women Inventors

<http://www.ehhs.cmich.edu/~rlandrum/aawomen.htm>

Cross Curricular Extensions:

Social Studies: Take a test at the following website to see how much students know about inventors in general. **Inventors IQ Test**

<http://www.inventorsmuseum.com/quiz.htm>

Art: Make an advertisement for one of the inventions discussed in these lessons.

Community Connections:

Interview black people in the workplace to see if they face situations where they need to not be afraid to make a mistake.