Project Fulcrum Teams

Clinton Elementary School
Deirdre Walton     Suanne Au (Mathematics)

Culler Middle School
Alysa Lanning Haack Kendra Schmid (Biometry)

Dawes Middle School
Beth Piersol      Gretchen Bartels (Mathematics)

Goodrich Middle School
Diane Swartzlander Luis Rosa (Physics)

Humann Elementary School
Linda Splichal     Tim Perrin (Computer Science)

Irving Middle School
Dianna Keefer-Knight Corinna Ross (Biology)

Lefler Middle School
Sarah Gergen     Christine DeVries (Chemistry)

Lux Middle School
Angela Zabawa     Dorina Mihut (Mech. Engineering)

Pound Middle School
Gary Furse       Martha Gregg (Mathematics)

Park Middle School
Theresa Rippe    Melissa Desjarlais (Mathematics)

David Schmitter (Physics)
Role Model Projects

Students have many misconceptions about scientists

Lead Teacher/Scientist teams addressed misconceptions

• Guest Speakers

• Research a Scientist

• Class Discussions
Guest Speakers

Irving: Guess the Scientist
As each guest scientist enters the room, the students guess what type of scientist he or she is

Lux: Speaker of the Week
• Surveyed to determine students’ interests
• Invited guest speakers to share how they became interested in their career
• Feature Speaker of the Week on bulletin board
Research a Scientist

Culler: Creating Scientist Books!

Find a scientist in each category:
- African-American
- Asian
- Native American
- Hispanic
- European
- Scientist like you
- Scientist of your choice

& All Guest Speakers

Dawes: Scientist Trading Cards!

A student found out that Rene Descartes got to sleep in until 11 o’clock in the morning when he was in school because of some health problems.
Class Discussions

Park: Sketch a Scientist

- Students draw and write about their idea of a scientist, Discuss ideas
- Students write about their hobbies
- Invite guest speakers to talk about their hobbies and interest in science
- Resident Scientist shares hobbies of famous scientists, his own hobbies, and his Top Five books, movies, bands, etc.

Lefler: Do you want to be a Scientist?

- Students write answers
- Group discussions
- Scientist address misperceptions
Project Fulcrum
University of Nebraska-Lincoln

Dr. Diandra Leslie-Pelecky, PI
Department of Physics and Astronomy

Christine DeVries, Graduate Student
Department of Chemistry

Sarah Gergen, Lead Teacher
Lefler Middle School

Shirley Mills, Project Manager
Images of Scientists

Many students, especially females and minorities, do not picture themselves as scientists

- **Role Model Projects** expose students to diverse careers in math, science, and engineering

- **Resident Scientists** present in the classrooms help broaden the students’ image of a scientist, showing **real people with personalities**, not just the stereotypical nerdy, old white male in a lab coat
Improving education

- More genuine scientific experiences
- Hands-on activities
- Inquiry-based learning
- Real-world applications
- Student-Parent Events

We do more labs and hands-on stuff than any other science class and that helps me understand what we are learning.  -8th Grade Student

I love the experiments we have done with [our scientist].  -8th Grade Student
UNL/LPS community

- Scientists are School-wide Resources
  Science, math & computer science classes
  After-school clubs
  Grades 3-8
- Project Fulcrum Equipment
  Available for all scientists and teachers
- UNL Departments
  Donate or loan materials for classroom use

Kids have had so much fun with Harvey the skeleton, and the students have retained the information they learned about bones really well. -Scientist
PF Group Meetings

- Encourages quality teaching
- Forum for exchanging ideas
- Open discussions support individuals
- Creates a community

Meetings are the most important part. Sharing ideas among scientists has helped me learn that I am not the only one that struggles with certain aspects of being in the school. -Scientist
School-wide Resource

Christine has worked with *every science teacher* and visited *every science class* at Lefler Middle School.

7th & 8th Grade Chemistry

She has visited a *math* class and plans to visit the *industrial technology* and *band* classes.

6th Grade Digestion
Inquiry lesson: Elodea lab

• Students performed a photosynthesis lab that gave varying results between groups
• Students offered possible reasons for discrepancies
• Students generated a list of questions and composed their own lab to test factors affecting photosynthesis
Curiosity Question Box

The place for student questions that may be ‘off topic’ or take more time to answer

What are all the elements in the human body?
How many types of carbon are there?
Can people spontaneously combust?
Is Albert Einstein still alive and if not how did he die?
Does your brain have a maximum capacity of knowledge?
Cut out Q? Box photos

Why does an egg float in saltwater?
How can metal boats float?

How can you separate water into H₂ and O₂?

Two to left are nice, one above can be skipped.
Put LJS article on the panel.
Have Q? sheets available?
RS, teacher, principals

Sharing my research with the teachers got me excited about it again!  -Scientist

PF has helped me think about the quality of my teaching in an organized manner. I have built more on my teaching this year than any other year since my first (teaching 6 years). It's like having seminar again! -Teacher

A teacher told me that the scientists coming into her classroom are very refreshing and it helps her get through her work. She often looks forward to our presence.

More than once the principal has complimented me and Project Fulcrum on the work we do in the school. He is very pleased with our presence there.

Greater understanding of teacher's work, but also a finer appreciation of it too.

It has been nice to have the resources I wouldn't have otherwise. I also appreciate having our scientist help with research - to spend time looking up information to apply to our lessons that I would not have the time to do.

-Teacher
**Student & RS Quotes**

I think I have had **more fun in this science class** than any other science classes I have had.

* -8th Grade Student

Having Mrs. DeVries here has changed my idea of a scientist.

* -8th Grade Student

Project Fulcrum and having the Scientist here has made **science more fun**.

* -8th Grade Student

I have learned a lot and it is cool to be able to **ask all the questions we want** and have a reliable resource.

* -8th Grade Student

Having a scientist in class has really surprised me a lot! I really enjoy having Mrs. DeVries here, involved in everything we do.

* -8th Grade Student

I enjoy interacting with the students. They are all smart in their different ways and it is really exciting to see them get excited about science.

* -Scientist

I know now how hard it must be to work with students every day, particularly in the lower income schools.

* -Scientist