

Implementing Inquiry at *Stars, Sight and Science*

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Presented at:

*Broadening the Impact of Your Research:
Teaching, Communicating and Partnering in Building*

Stars, Sight and Science

teen talented and
tivated high school
students

mersive, four-week
experience

Cluster topics:

Astronomy

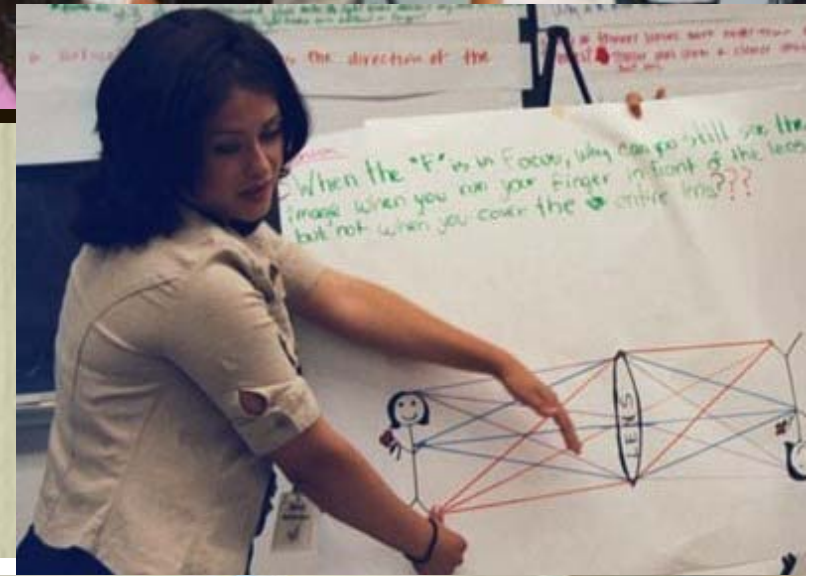
Vision Science

nce Communication

Raschke and I were



Goals:
Basic Optics
Astronomy
Process-Oriented Skills
Inquiry is one of several
tools:
Lecture
Inquiry
Activity
Choosing the right tool



fundamental, intuitive
knowledge of how
tical elements work
ocess objectives
e inquiry process is
ed on the same skills
ne students use for
eir research projects

- self-motivated
exploration
ability to generate
questions

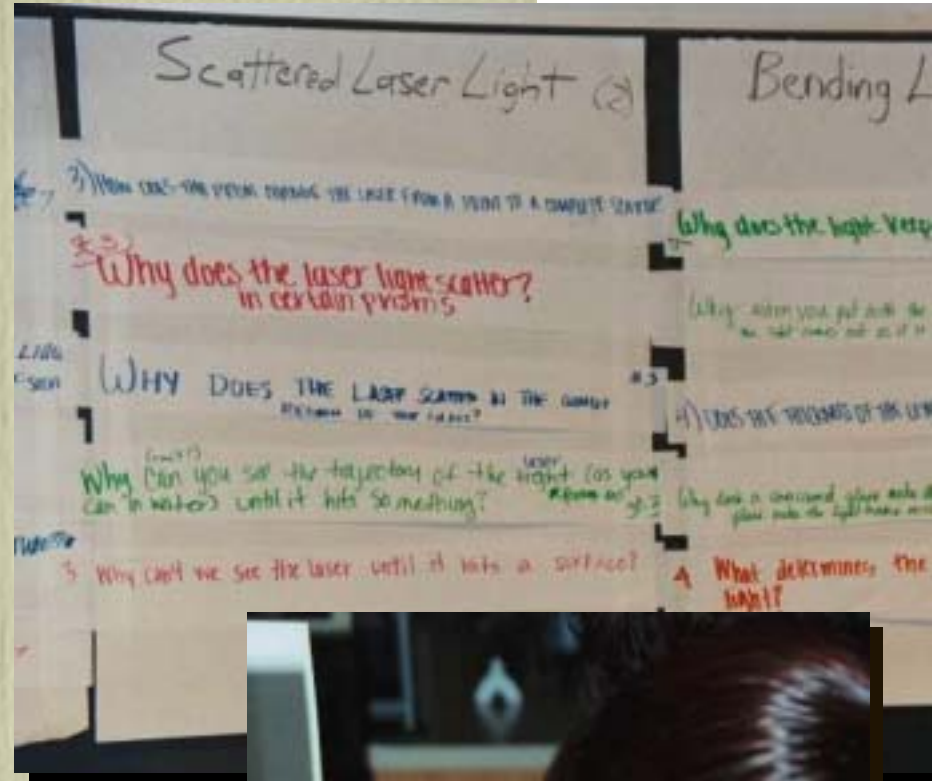


nts prior knowledge
ried dramatically
conceptual overview
created a tiered set
content objectives
s, in-turn helped us
gn the optics inquiry

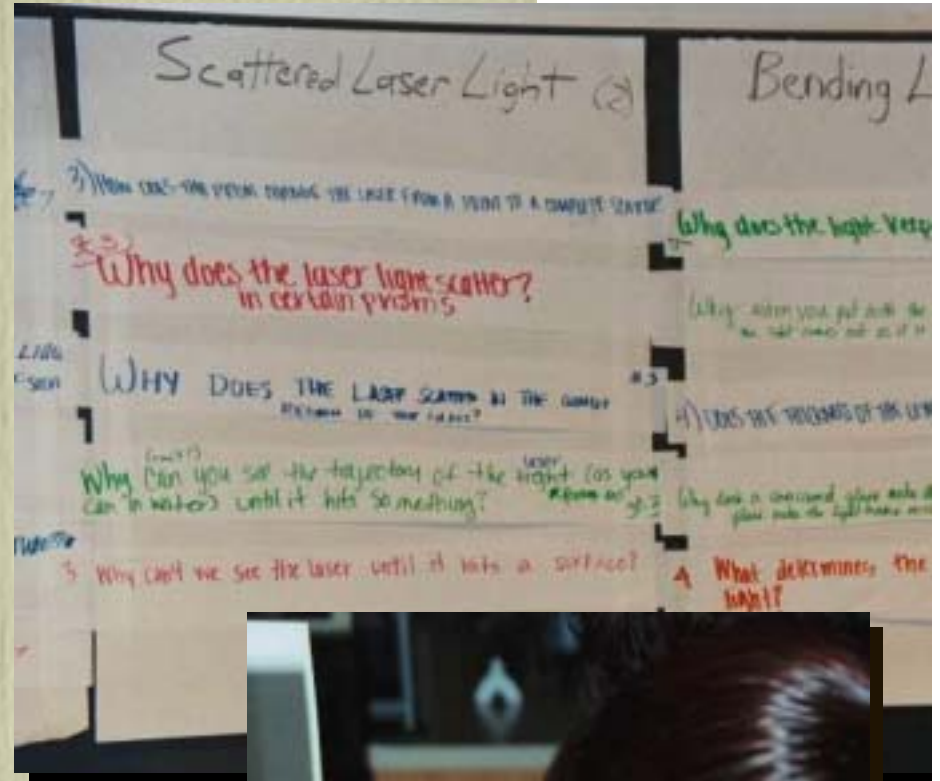
Tradeoffs:

Provide ample
materials

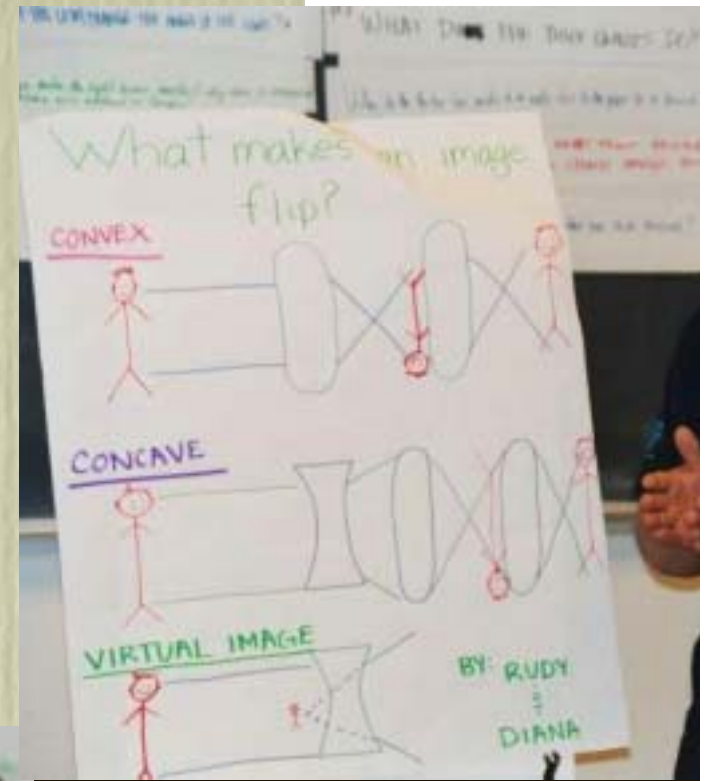
However, limit
materials to focus



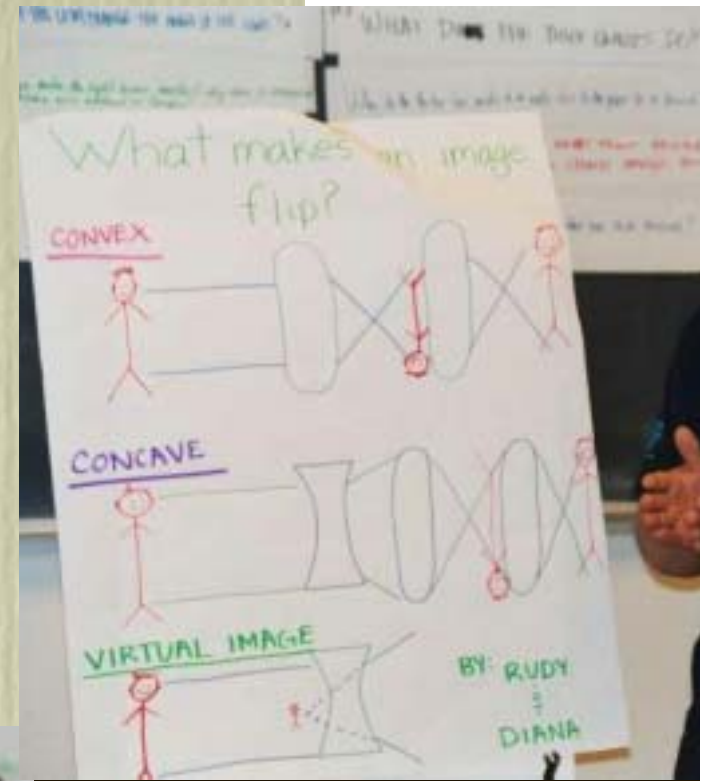
Goals:
students grasp first tier objectives
many students grasp second tier objectives
advanced students challenged by third tier objectives



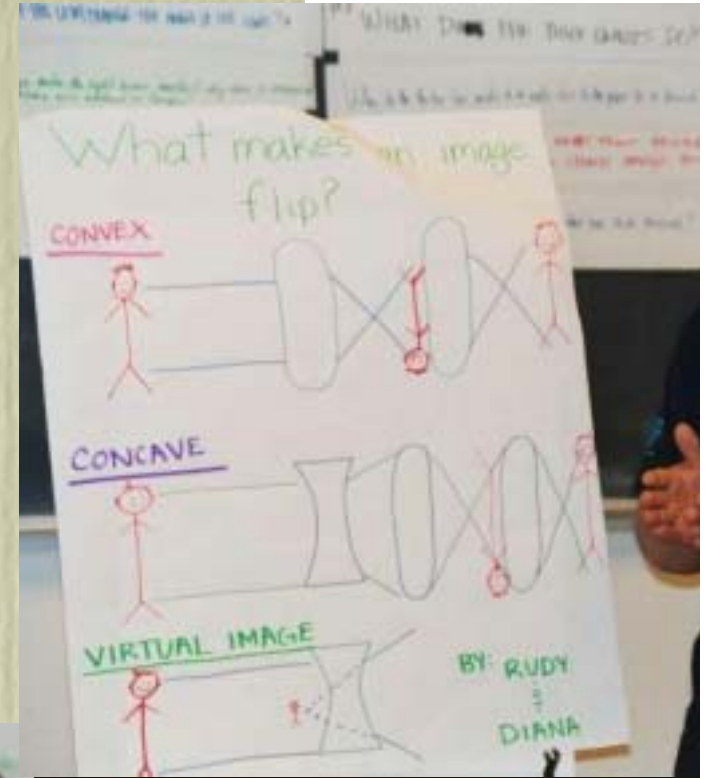
Tier, Understand:
The way lenses and mirrors change the path of light
difference between diverging and converging beams of light
different way convex and concave optical



Advanced Tier, Understand:
concept of focal point
way convex lenses
form images (including
image inversion)
relationship between
magnification and the
distance to the image
plane



1 Tier, Understand:
relationship between
nature of the lens and
the focal point
derivation of the law
of reflection
phenomenon of total
internal reflection



Students' investigations
covered many of our
content goals
first tier objectives
most second tier
objectives
third tier objective
reinforced several
concepts, leveraging the
students' work
introduced the term



we were pleased - the
inquiry was a success
developed a plan for formal
assessment
formal assessment
indicated:
participants were interested,
enthusiastic and
motivated

their work addressed
most all of our content



Knowledge Survey
At the end of the program
we gave a short,
unannounced test over
all of the material we
covered during the
astronomy course
Students performed
well on the optics



ly inquiry as a tool
when and where
appropriate (along with
structure and activity)
y is good for content
and process goals
content goals work
ell for groups with
parate backgrounds
e assessment in your

