

LIGO



Science Education Center Outreach Program



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LIGO Science Education Center:

Partnerships to Advance Science Education

- Research Labs
- Universities
- Education Agencies
- Informal Learning Centers

NSF Site Review
October 23, 2006;
G060532-00-M

John R. Thacker
Education & Outreach
LIGO Science Education Center



The LIGO SEC work is supported by the National Science Foundation grants Phy-0107417 and PHY-0355454





Four Themes

- Our Partnership
- LIGO Science as motivator
- Science Education Center Facility
- Education/Outreach Impact



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SUBR

LIGO

Our Partnership

LIGO
SEC

LaSIP/La GEAR UP

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Southern University

College of Education

College of Sciences

- Dept of Physics
- Dept of Mathematics

- A Leading producer of teachers in LA
- Largest HBCU System in the nation

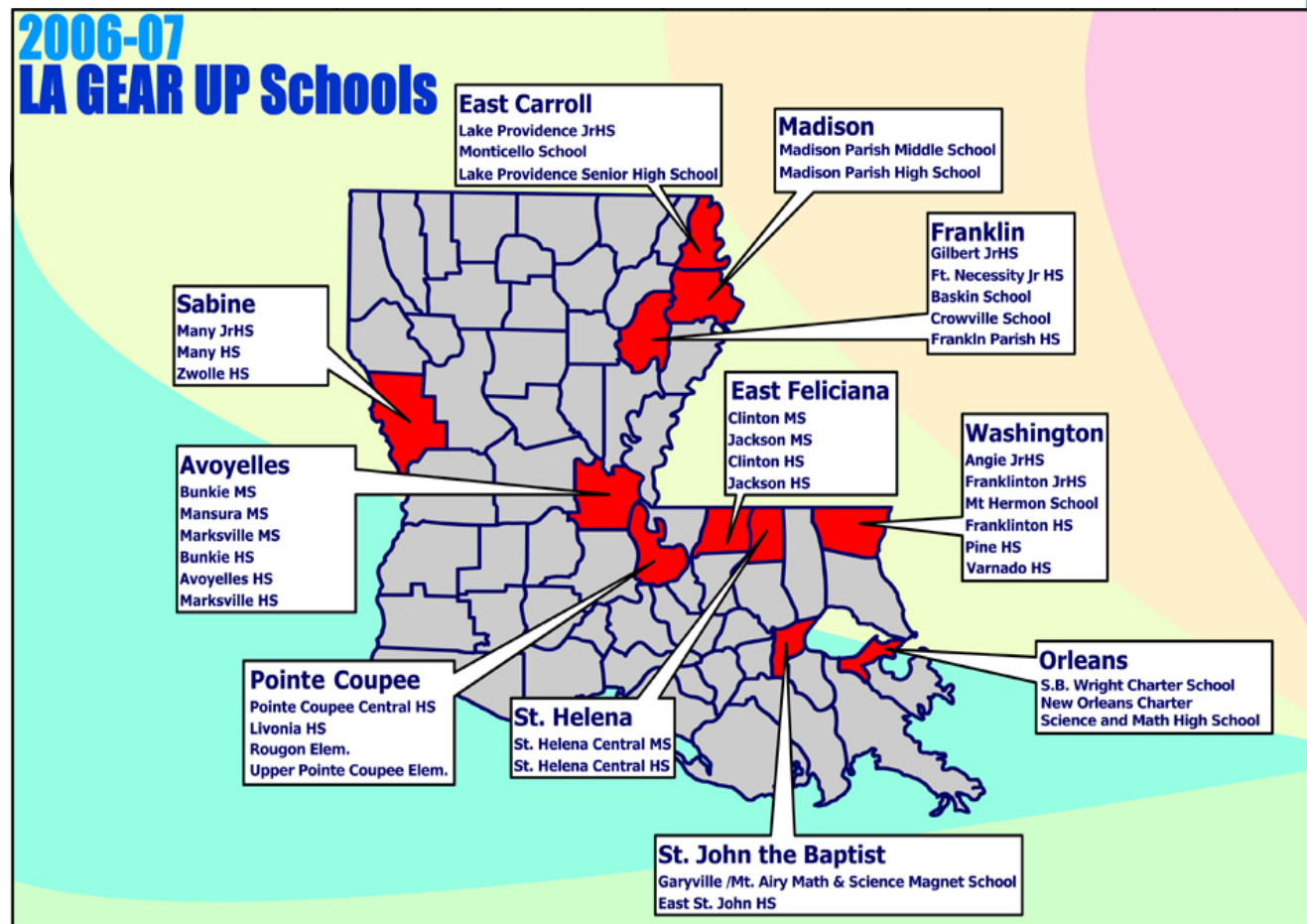
- Course Redesign
- E-Learning
- Pre-service Teacher training
- Docent training
- Student Field Trips



LA GEAR UP

Louisiana Gaining Early Awareness and Readiness for Undergraduate Programs

- statewide K-16+ educational reform agency
- school connections
- Teacher Professional Development



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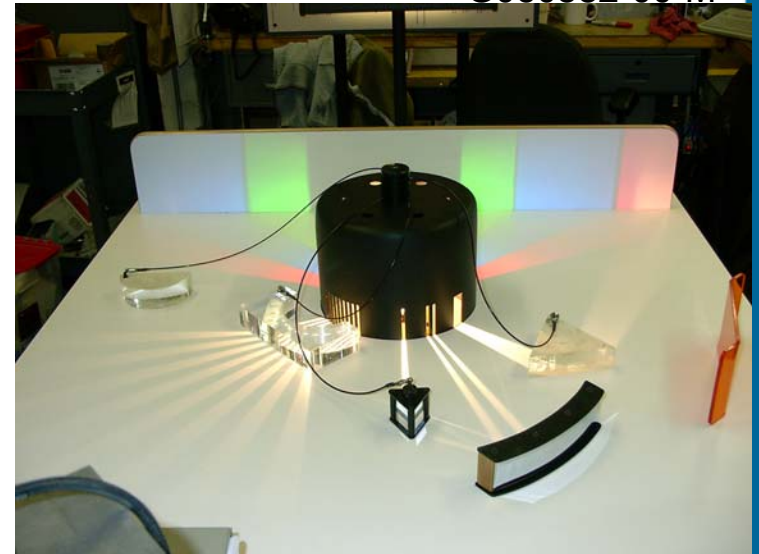


Exploratorium



Informal learning environment

An educational center



Over 650 exhibits

Teaching & Learning



the exploratorium
Institute for
Inquiry

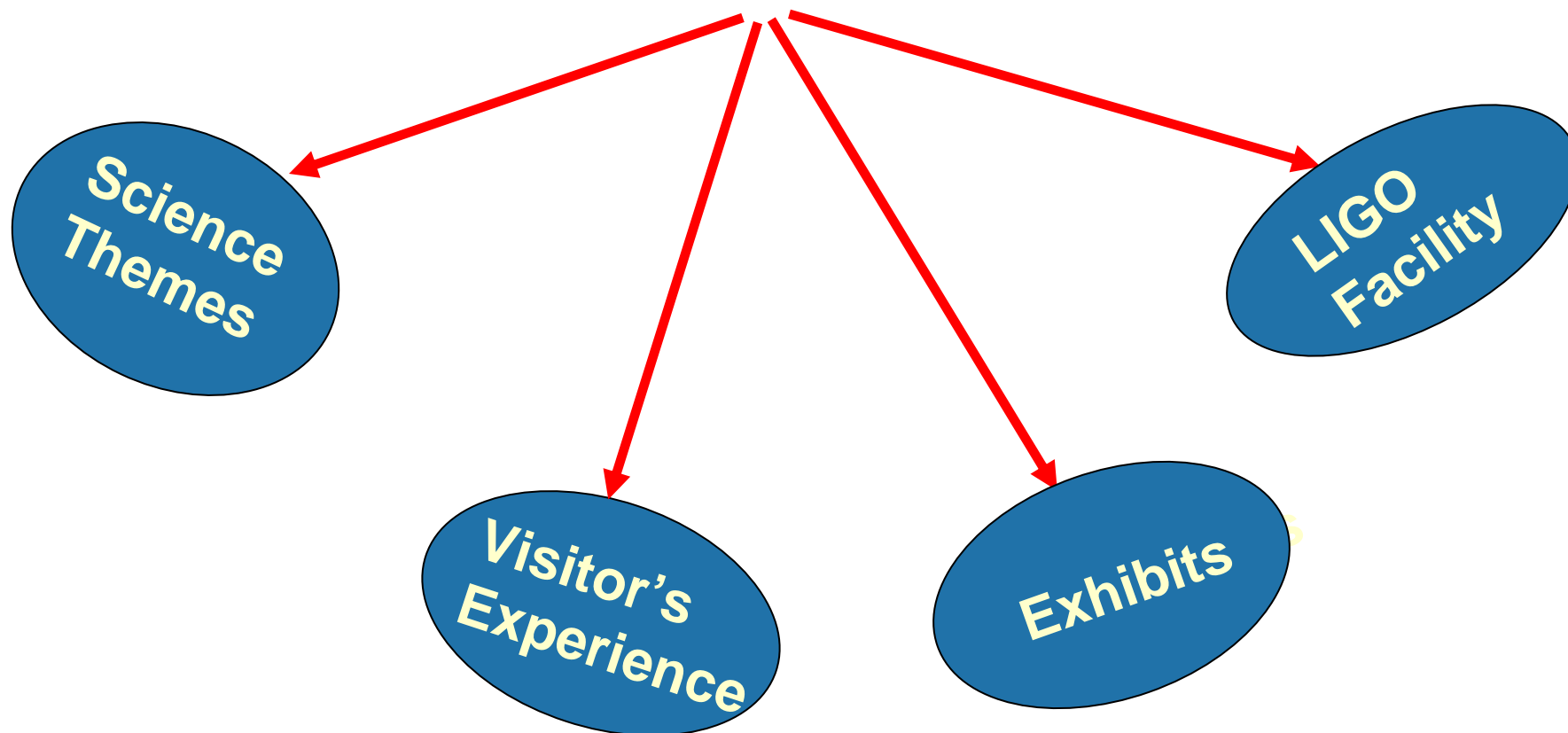




The mission of LIGO:

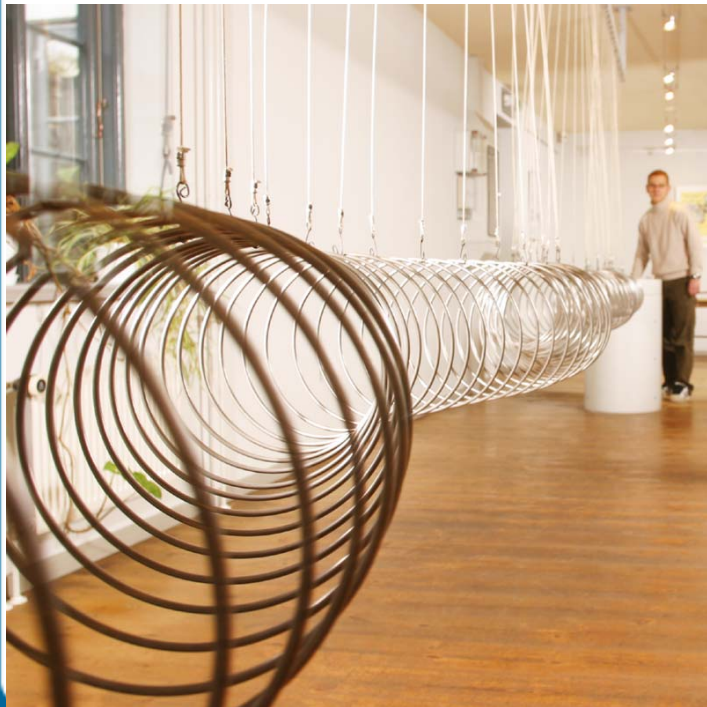
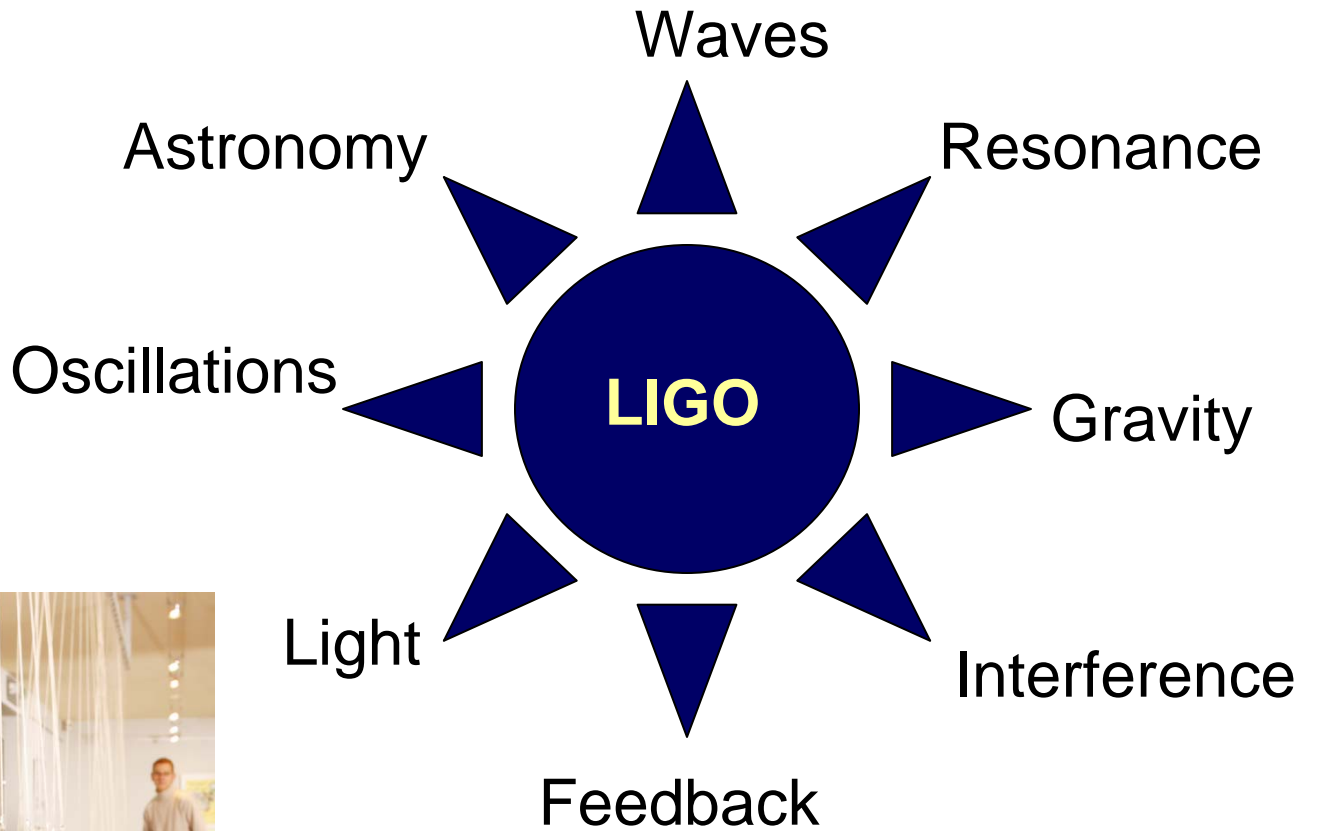
Detect and study astrophysical gravitational waves

LIGO Science: Motivator





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Science/Technology Themes



LIGO science

Exhibits

Activities

Standards

Curriculum

“Snacks”

Outreach

LIGO science themes are threaded through all outreach efforts



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Visitor's Experience



Students



Teachers



Public



Visitor's Experience

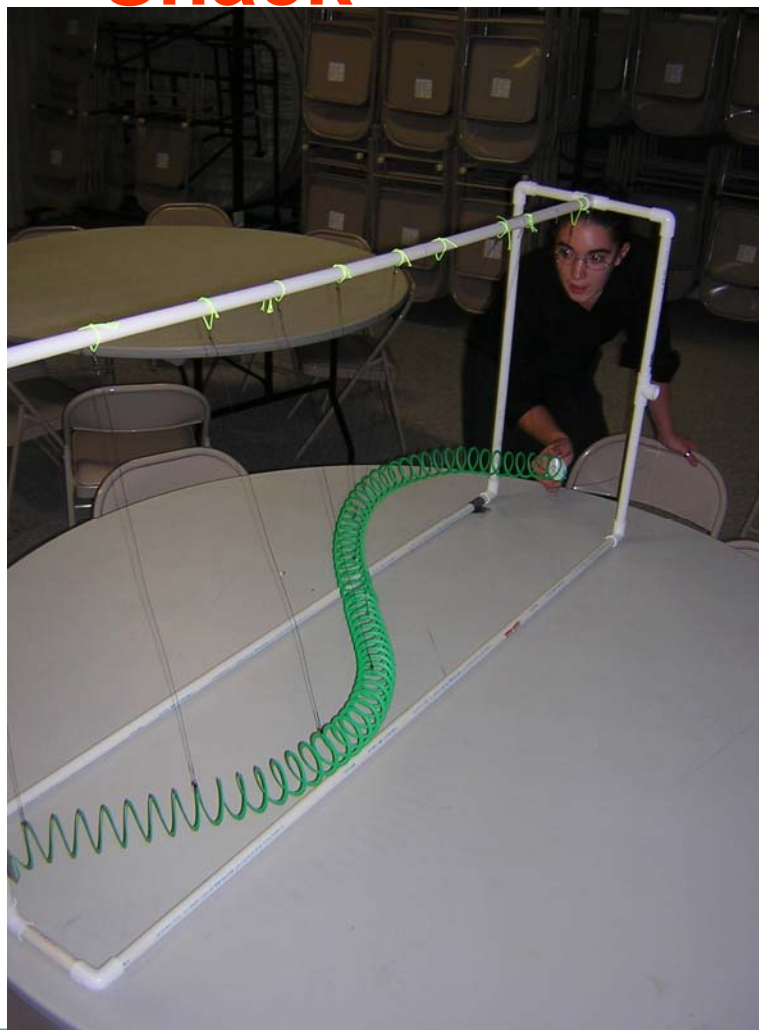
- Students
 - Meticulous planning
 - Standards, Science Content
- Teachers
 - Research, planning, presentation
 - Explicit ties to LA standards
- General Public
 - Tours; extended visitor experience

Exhibits

Exhibit



“Snack”





Teacher Responses To Exhibits

The LIGO facility is setup for inquiry based learning! Since most science classrooms do not have the equipment to effectively teach students concepts, the LIGO facility gives teachers and students to apply what they have learned to wonderful models. This should address misconceptions and provide a better foundation of science.

I would recommend it because I went away with a better understanding of many concepts that I cover in science

I would recommend the LIGO sessions to other teachers because it offers real life demonstrations of physical science.

SEC Facility



LIGO



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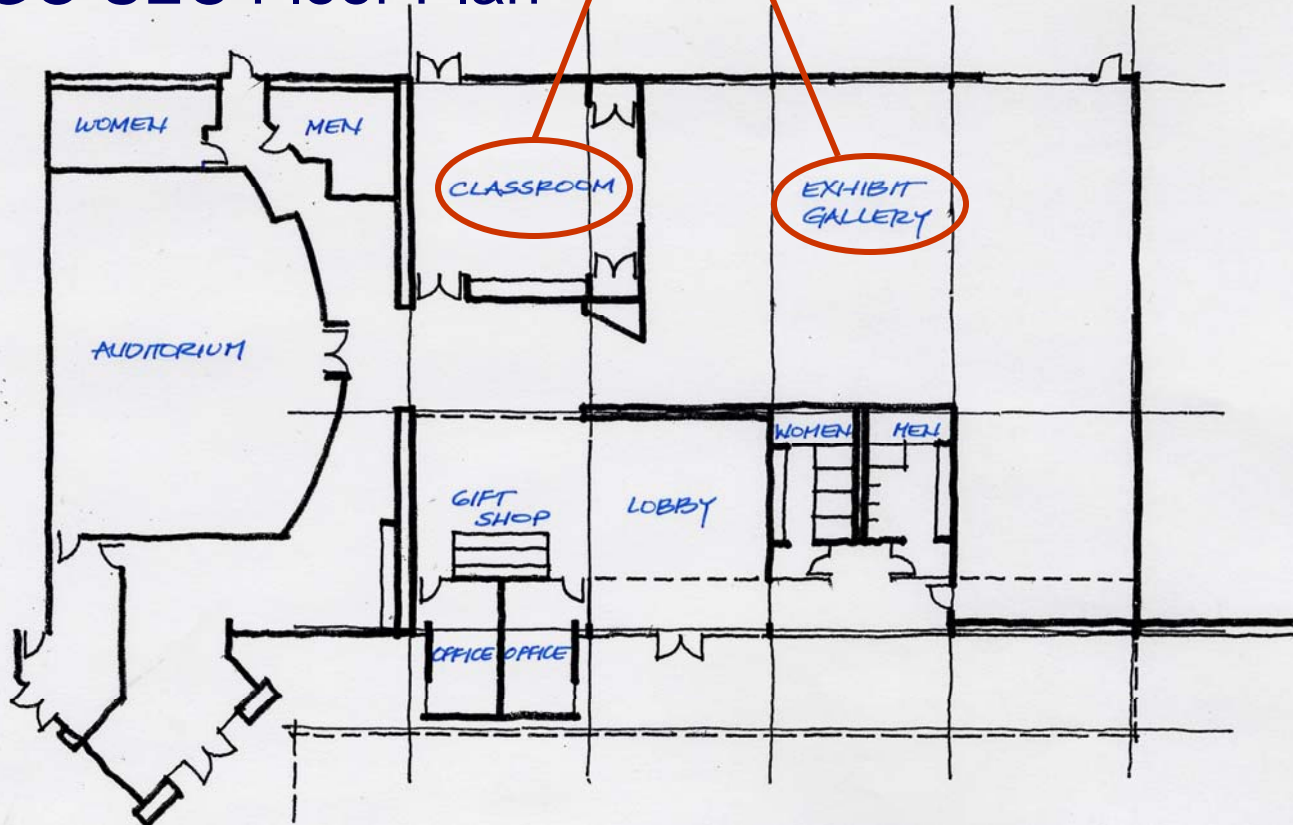
Today

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Informal and Formal Science Teaching and Learning

LIGO SEC Floor Plan





LIGO Science Education Center: *Impact*

Objectives include:

- Pre-service and in-service teacher training
- Reach a broad audience of students in Louisiana and regional area
- General public outreach



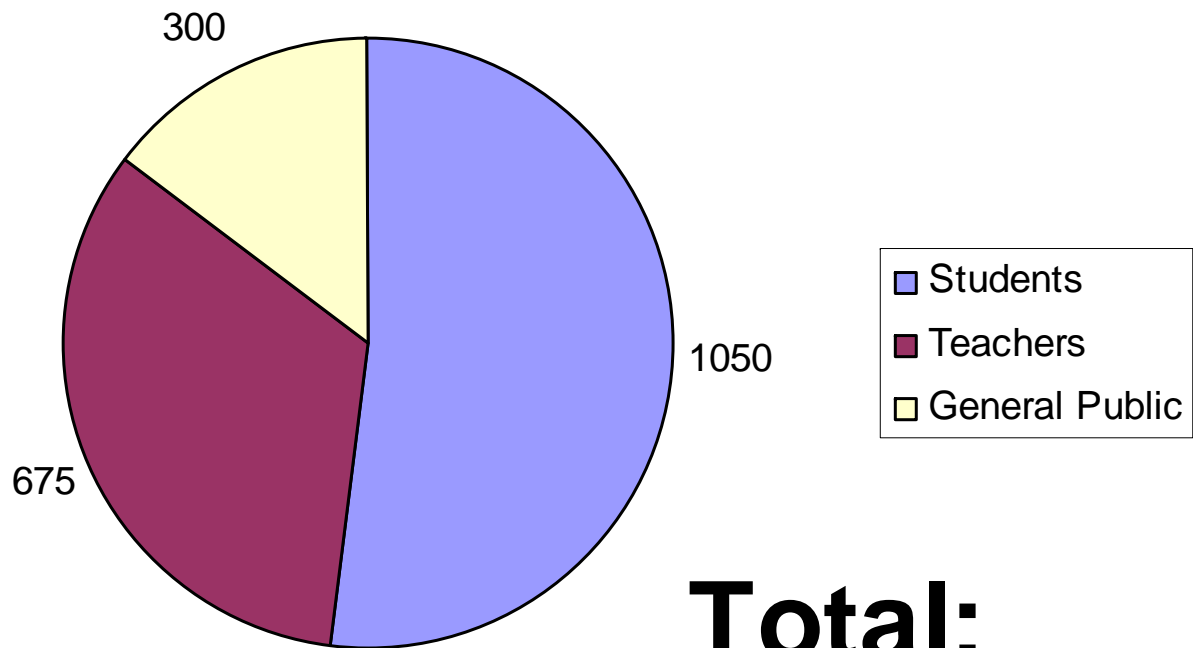


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Impact

On-Site Visitors LLO



**Total:
2025**



Impact

Reaching a Broad Audience of Students





Impact

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Teacher Professional Development



Inquiry based

Impact General Public



The Historical Society models the space-time continuum.

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Impact



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Typical Field Trip to LIGO SEC

Arrive 09:00

Morning Activity #1

Morning Activity #2

Lunch

Afternoon Activity

Tour Control Room

Depart 13:30



Mckenzie young
5/10/06

English

Dear Mr. John,

Thank you so much for everything that you did for us. I had a great time at LIGO. I learned a lot of interesting facts about science. There was a lot of great hands-on activities that were awesome. I will ~~def~~ definitely visit LIGO again.

your best scientist,
Mckenzie young



Impact



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May 12, 2005
Mr. Thacker,

I had fun at LIGO on our last field trip. It was interesting and cool. I just wanted to say thank you. I don't enjoy science that much, but it was very interesting. It was the best field trip I've had all year. Thank you again, you really made it fun and cool.

Your friend,
John Postwood
St. Jude.



Future

- Continue high profile role in LA science
- Partner for Science Education Research
- Develop 2 interactive exhibits per 18 mos.
- Develop sustained family programs
- Develop student researchers program
- Continue development of “snacks”
- Continue support: Pre- and In-service teachers



LIGO SEC Summary

- **Multi-faceted approach to outreach**
- **LIGO SEC facility will be fully used for student learning and teacher PD**
- **Interactive Exhibits will be used to anchor students and teachers in LIGO science themes**
- **“Focused science” themes**
- **Regional resource: National Implications**

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