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Revolutionary digital learning
for science, math and engineering

Fostering Student Motivation and Achievement: Research to Practice Lessons Learned from the ITEST Program

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The Concord Consortium, Concord, MA

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The world today is
changing at a blinding pace

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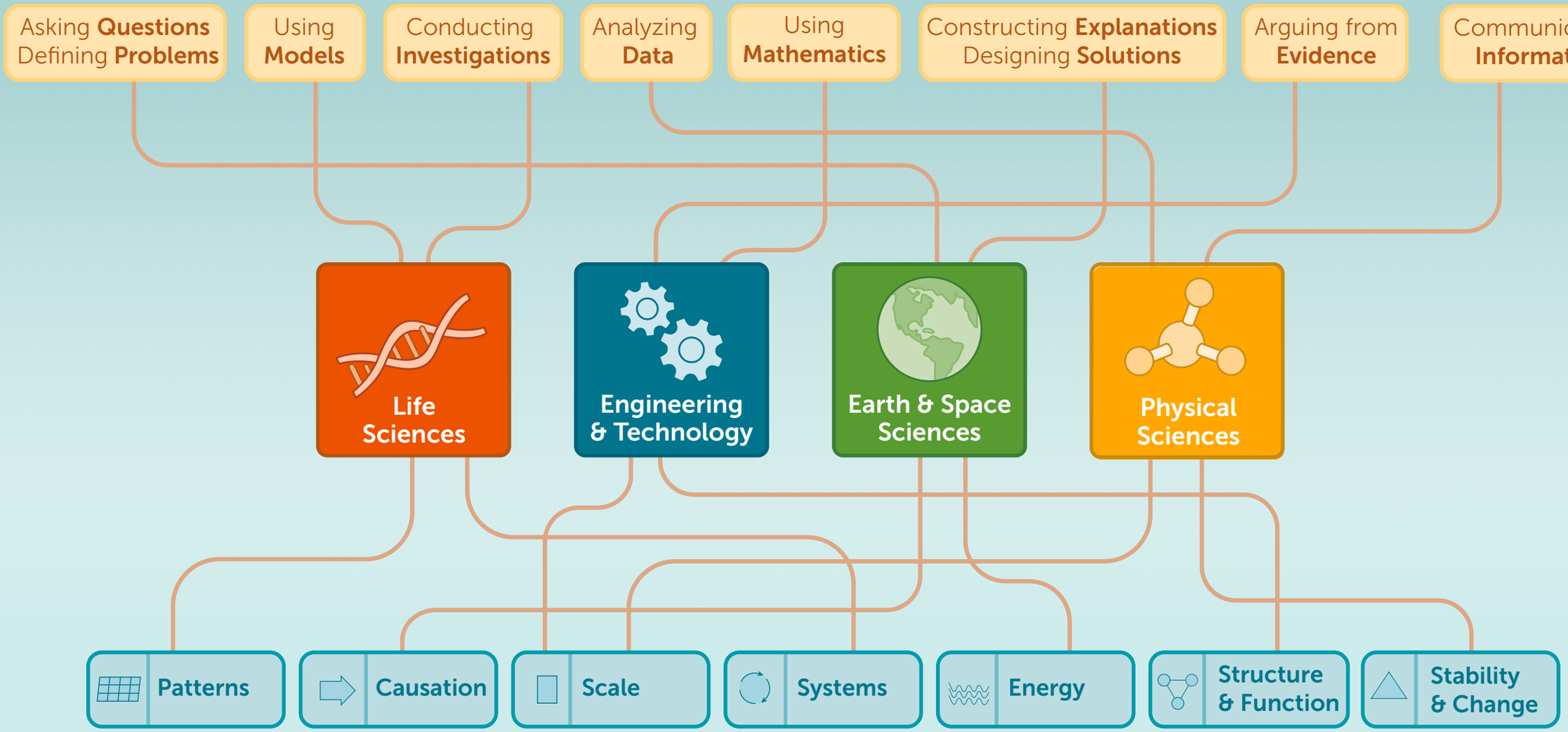
NEXT GENERATION SCIENCE STANDARDS



http://concord.org/ngss/

Scientific and Engineering Practices

- Asking questions / defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations / designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, communicating information

Engaging Students

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Engaging students through inquiry-empowering students to know how to learn…

Motivate through Exploration

Students are exploring and discovering on their *own* while acquiring and applying new knowledge and skills...

Asking Questions/ Defining Problems

Teachers are facilitators to promote student responsibility, self-management, sociability, and self-esteem...

Developing and Using Models

Molecular Workbench

Students interact with a variety of appropriate technologies including multiple representations of macro and micro environments...

Share About

Thermometer

Cool Heat ■ Show hydrogen bonds ☐ Show partial charges ☐ Slow motion

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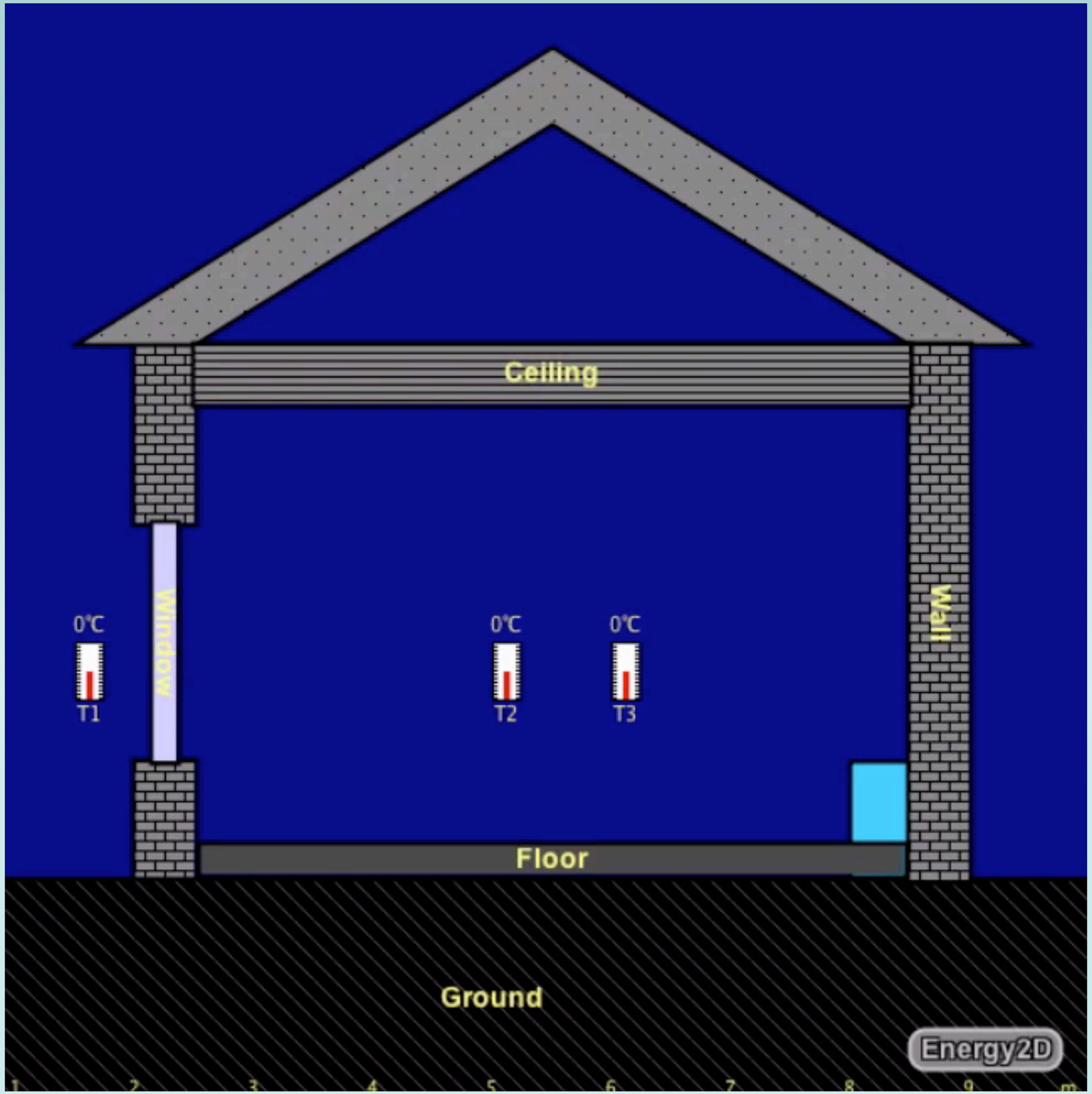
Ceiling
Window
Wall
0°C
T1
0°C
T2
0°C
T3
Floor
Ground
Energy2D
1
2
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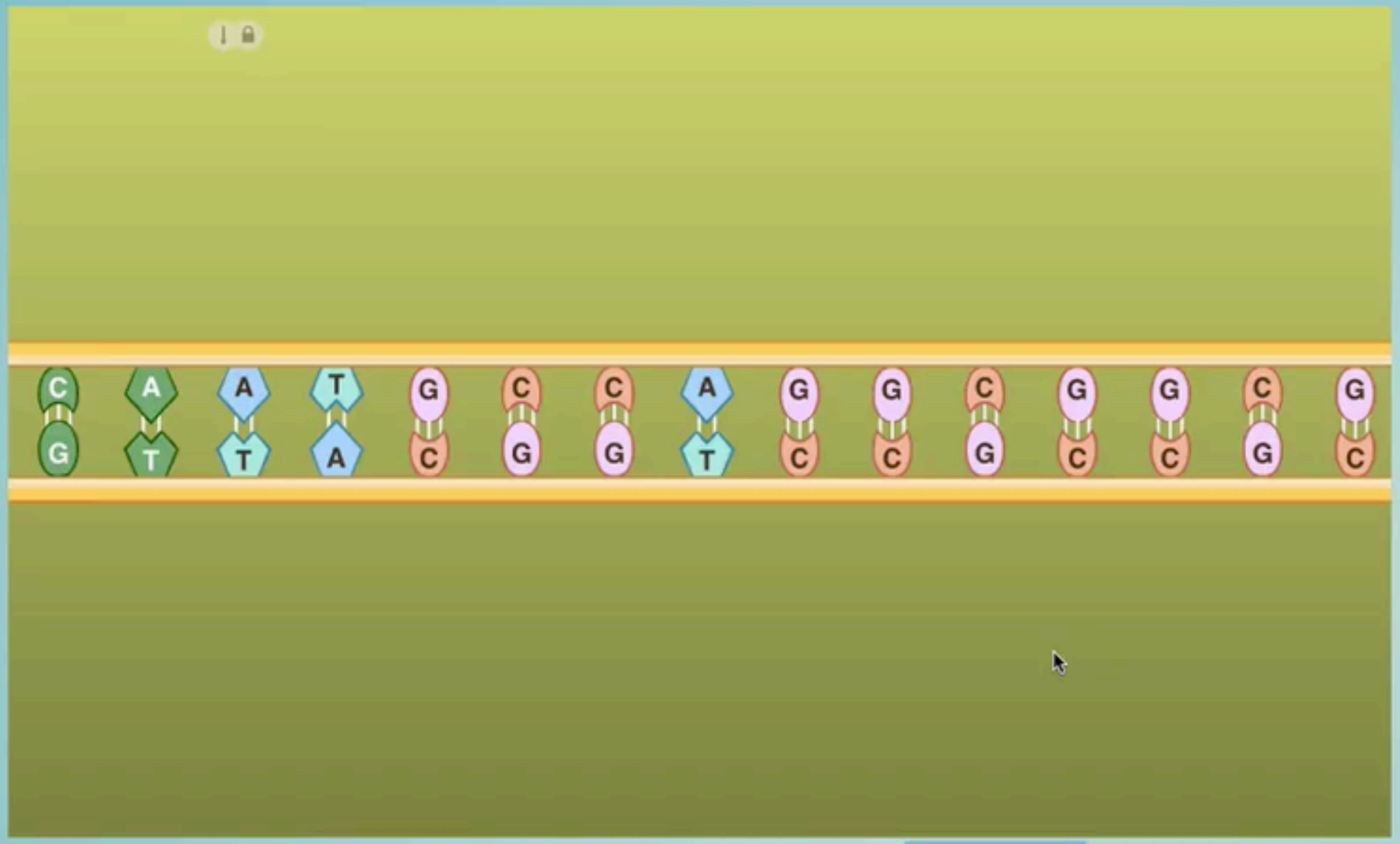
Share About



Click on a nucleotide to perform a mutation or Edit DNA

Show DNA | Transcribe | Translate | Show protein

Continue one step | Start/continue model | Stop | Reset

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Share About

Use the animation controls
to go on a guided tour of an aquapore.

At each stop on the tour
you can explore the model by
dragging the mouse to rotate the model
and shift-dragging to zoom the model.

*Note: With large biological molecules the hydrogen
atoms are commonly not shown.

JSmol

Play movie

Go to next scene

Go to previous scene

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Analyzing and Interpreting Data

Collecting and analyzing their *own* data and communicating results…

Interest in Careers

Usted usará un sensor de fuerza para medir la fortaleza de su puente. Un sensor de fuerza mide qué tan fuerte una fuerza empuj
de algo. Es algo así como una báscula de baño que se utiliza para pesarse.

Discuss with your group how you could use a force sensor to test how strong a bridge is.

Discute con tu grupo cómo se puede utilizar un sensor de fuerza para poner a prueba lo fuerte que es un puente.

Materials

- force sensor
- manila file folders
- masking tape
- safety scissors
- string
- pencil or paper clips
- student desks or tables
- sensor de fuerza
  - Manila carpetas de archivos
  - Cinta adhesiva
  - Seguridad de las tijeras
  - cadena de
  - Los lápices o clips

Link careers to investigations relevant for jobs that exist today and for jobs in the future...

Designing Solutions

Relevance to real world problems that will address the future needs of our STEM workforce…

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Molecular Workbench Co-Design Workshop

Have you dreamed up molecular

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