Interactive Cases™

A Problem Solving Approach to Science Education

Enable Your Students to Explore the Molecular World

Cogent Education is dedicated to supporting science education, and assisting teachers, by creating case study software in which students *interact* with the molecular world to learn difficult biological concepts through inquiry and problem-solving. Funded by the National Institutes of Health and the National Science Foundation, our **Interactive Cases™** were designed by scientists and created by programmers, game designers and artists to provide students opportunities to act like real scientists.

Provide Interest and Relevance Through Interactive Cases™

To make science interesting and meaningful for students, the **Interactive Cases™** use video simulations to create engaging real-world scenarios where students take the role of a STEM professional. They practice critical thinking and problem solving skills by making observations, collecting and analyzing data, forming and testing hypotheses, and communicating their findings. The **Interactive Cases™** are researched-based, correlated to NGSS and state standards, and are *proven* to elicit significant learning gains in all learner groups (through a 4 year independent study with >3,000 students).

Get Real Time Data on Critical Thinking Skills

Through our skills and assessments-based learning environment, teachers receive real-time formative assessment. This allows them to see how their students are *thinking* and to identify *pain points* for each student and intervene immediately where needed. The easy-to-use heat map allows teachers to *quickly* identify concepts and critical thinking skills that a student, a group of students, or an entire class may have trouble mastering.

> "Some of my students have never seen an animation of what the inside of a vein looks like or a red blood cell. They almost have no words!"
> Holly Amerman, High School Science Teacher
> Rome High School, Rome, GA

> "The Interactive Cases are teaching the skills to take content knowledge and apply it to a real world problem and that's what I need."
> Denise Esterly, High School Science Teacher
> The Walker School, Marietta, GA

Cogent Education's Formative Assessment Heat Map (SABLE)

Cogent Education's Interactive Cases™

- Take 1-2 class periods to complete and can be used as often as needed
- Concentrate on concepts identified as most challenging for students
- Align to state and Next Generation Science Standards (NGSS)
- Research-Based (4-yr study, >3,000 students by the University of Georgia)
- Proven to enhance students' abilities to think critically
- Create awareness of many STEM-Based career options for students
- Provide real-time formative assessment
- Allow anytime, anywhere learning (may be used at school and home)
- PC, Mac, iOS or Android (Web & Chromebook 2017-18 Academic Year)

Interactive Case™ Topics For Biology

Osmosis: In the role of a veterinarian, students help a young calf, named Clark, who is having seizures. To determine the cause, the students "fly into" Clark's brain to learn about osmosis and apply their learning to save Clark.

Diffusion: In the role of a physician assistant in the ER of a hospital, students help a patient who has been exposed to chlorine gas following a train wreck. Students fly into the lungs to learn about diffusion and apply various treatments, collect data and help cure the patient.

Filtration (Homeostasis): In the role of a physician assistant, students must help a young man, named Anthony, who has Type II diabetes and high blood pressure. They must make a diagnosis and then apply the principles of filtration to help Anthony.

Cell Respiration: A CIA agent has been poisoned, but is still alive and has been rescued by Navy Seals. As a forensic scientist, students must determine the identity of the poison that has affected the agent's cells.

Photosynthesis: As a marine biologist, students must determine why the coral in the Great Barrier Reef is bleaching. By learning the key principles of photosynthesis and performing experiments in their laboratory aquarium, students determine the cause of the coral decline.

Protein Synthesis: A baby girl's ADA enzymes are not working properly and suffers from ADA SCID, an immune disease. Students act as a pediatrician and learn about protein synthesis to find the cause of the disease.

Cell Signaling: As a veterinary neurologist, students learn about cell signaling to help a dog that has tremors and trouble standing up. As they do, they learn about links between hormones, gene regulation and the nervous system.

Membrane Potential: In the role of a nurse at a university health facility, students must help a student who stayed up 18 hours studying for finals. The patient drank lots of energy drinks and coffee, and is now suffering from muscle weakness and having trouble walking.

Action Potentials: In the role of a physician in the ER of a hospital, students must help a young hiker who arrived complaining of painful muscle spasms in his calf. Students must determine what animal has stung or bitten him and determine how the toxin has affected the action potentials in his nerves.

Nitrogen Cycle: An infant on a farm has blue baby syndrome. As an EPA environmental engineer, students must find the cause of the baby's illness. Using data from the environment, students learn the importance of the nitrogen cycle and how human factors can impact nature.

Membrane Transport: In the role of a physician in the ER of a hospital, students must help a young child that has ingested a toxin while on a family outing to a botanical garden.

Synaptic Transmission: In the role of a neurologist, students investigate how nerve cells communicate to help a patient who has recently developed hand tremors and has trouble standing and walking.

Enzymes: A Great Dane dog is eating well, but losing weight. As a veterinary technician students apply their learning of enzymes to help the dog recover.

Meiosis: As a geneticist, students learn about genetic alterations in meiosis to determine why a calico cat, which are usually female, is male.

Evolution: Working as a CDC scientist, students investigate an outbreak of multi-drug resistant bacterial infections, and trace it to the use of antibiotics on a commercial farm.

Subscription Details

Academic Year Subscription

Our Interactive Cases are sold as an Academic Year Class Subscription (July 1- June 30th). A Class is defined as a single seating of up to 40 students during one time period. For example, an Introductory Biology class that meets with 32 students from 9:30-10:30 would be considered a Class. Visit our website for pricing details or contact our Sales Department to build a custom proposal to meet your needs. School and district volume discounts apply.

Flexible Options

Teachers can customize the number of Interactive Cases for each class period and select the topics they would like to use. Packages come in 3, 5, 10 or 15 packs.

Anytime, Anywhere Learning

The software can be installed on as many devices as deemed necessary by the school, including students' home devices.

Correlated to Standards

Cogent Education's Interactive Cases are aligned to state and NGSS standards. To review, visit: **http://www.cogenteducation.com/standards**

Join the Growing Group of Educators

Help your students tackle challenging concepts with our interactive tools that inspire a love for science, and prepare them for college or successful science careers. Visit our website to learn how teachers are engaging their students like never before!

Cogent Education
Science by Scientists
Real World Skills, Real Time Data
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