WHAT IS WEBCAM LABORATORY?

Nature is beautiful, science is fun!

WebCam Laboratory introduces a new and exciting method of teaching natural science where exploring the 'secrets of nature' is fun and playful and the path of studying is through success instead of failure. With the help of our incomparable software, we guarantee to raise interest, willingness, and performance of your students' way beyond your imagination.

WebCam Laboratory is a comprehensive, interactive gap filling educational software, targeted at elementary, middle and high school students, schools and parents, creating an alternative for expensive lab equipment.

Lab equipment capable of aiding reasonable natural science experiments are in most cases costly and complicated to use. WebCam Laboratory on the other hand makes studies of natural sciences highly cost effective. All you need is an ordinary webcam and our unique software to become the scientist deep within, where boundaries of your experiments are the boundaries of your imagination. Moreover, we have developed new versions for your laptop and your classmate PC, so you may now have a mobile laboratory, do your experiments indoors or outdoors, in the classroom or at home.

Today's over-abstract teaching techniques result in a severe decrease of students who enjoy their natural science studies, physics, chemistry, biology, and geology etc... WebCam Laboratory offers them the possibility to look behind the scenes experiment and understand the principles of science in an easy to interpret and fun manner.

FOR STUDENTS

- Provides playful and fun experimenting
- Awakes instinctive curiosity towards nature and their surroundings
- Aids in depth understanding of natural science principles and phenomena
- Develops skills of abstraction and projection (showing relations between graphs and reality, similarities and difference between idealized object and reality)
- Gives opportunity to safely experiment at home, even to complete the homework
- Teaches through the feeling of success instead of failure
- Boosts self confidence

FOR TEACHERS AND PARENTS

- Puts things into a new perspective, making natural sciences interesting and exciting
- Provides an instrument that inspires students to think creatively
- May be used in almost all fields of natural sciences and compliments it through the entire curriculum (mathematical module coming soon)
- Teachers may carry out spectacular, computer-aided classroom experiments with the most ordinary, everyday objects.
- Students may at the same time do the same experiment – develops the art of teamwork
- Provides a growing database of experimental possibilities (video-based presentations)
- Makes doing homework a lot more fun, helps the recognition of cross-science coherence

FOR SCHOOLS

- Saves thousands of dollars (no need for expensive lab equipment)
- With the help of the universal logger, old and obsolete instruments may also be utilized
- Enhances performance of students in natural science studies
- Facilitates the work of teachers thereby improving their performance
- Bridges gap between school and home education
- Purchasing an unlimited license grants authority to schools to pass the software on to enrolled students in unlimited numbers, giving something of true value.

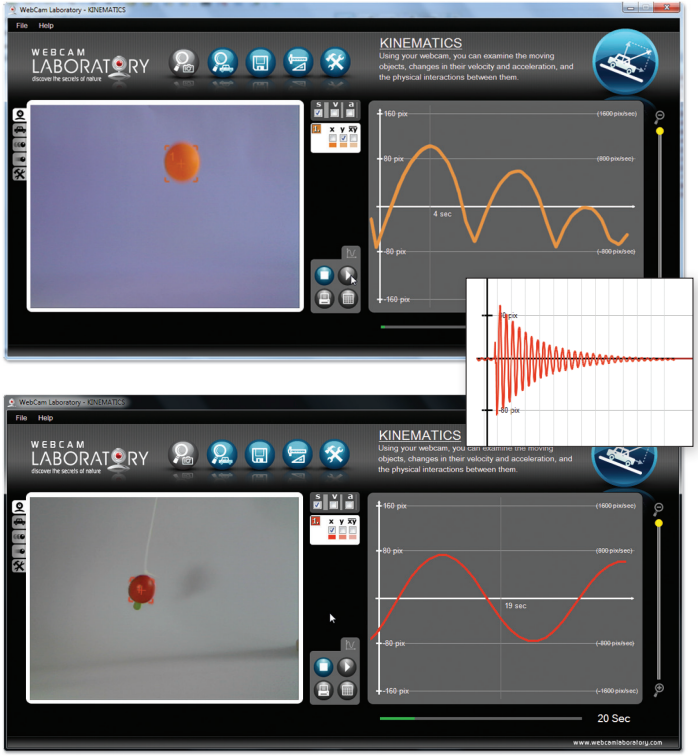
KINEMATICS

Can classical physics be also exciting, interesting and tempting you to experiment?

The answer is obviously yes! Of course only if you don't aim at thoroughly precise analyses, but to realize the connection between certain phenomena or the seemingly difficult but actually simple and easy to understand process of movements. WebCam Laboratory gives you the experience of exploring nature and provides you with exciting new knowledge.

To some extent, the webcam and the computer are much faster and precise than our own eyes. Using WebCam Laboratory and a simple webcam, you can observe various characteristics of movements. The simplicity of the software and more and more successful experiments will tempt you to newer and newer discoveries and you will learn the basics of classical mechanics in a fun way. WebCam Laboratory allows experiments to be completed outside laboratories and schools, even at home, using everyday objects, like toys (e.g.: a ball). Due to this, WebCam Laboratory can be an important part of playful learning, exploration and doing homework in a fun way.

WebCam Laboratory can be used especially well in the examination of vibration, periodical movements and dynamic collisions.



TIME-LAPSE CAM

Why is it so exciting to spy on the seemingly unchangeable nature?

On using the high speed recording function, extraordinarily slow processes become easy to observe and explain. WebCam Laboratory allows you to inspect a lively, constantly changing, but for us seemingly unchangeable world. This function can be a very important device in recognizing the fact that dynamics of slow processes are in fact very similar to processes with an ordinary speed. It also helps you to understand that the speed of processes - like many things in nature - are relative, and the role of the observant and his ability to observe things is not as important as you think.

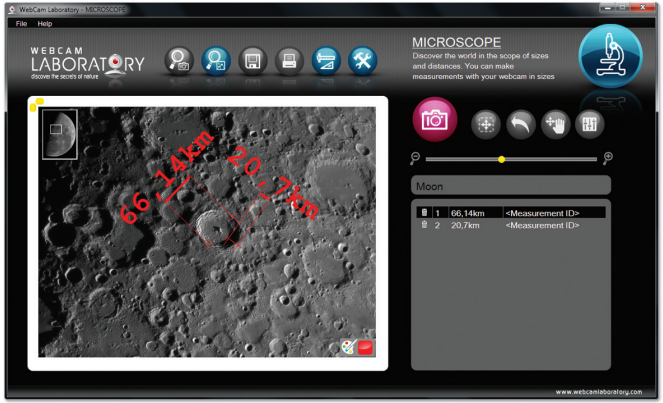
If we drip ink into a glass of water, the ink sprawls in the water. With the help of WebCam Laboratory, it is an exciting discovery to see that clouds act just like the ink in the water when they form, but at a slower pace. When the movement of the snail is observed at high speed, it resembles to a caterpillar and it is as exciting as observing the clouds. Using the time stamping tool, measuring is easy. You can analyze sunsets that have been recorded one after another. You can observe the circulation of the Sun related to Earth. You can see how the days shorten or lengthen according to the changing of the seasons.

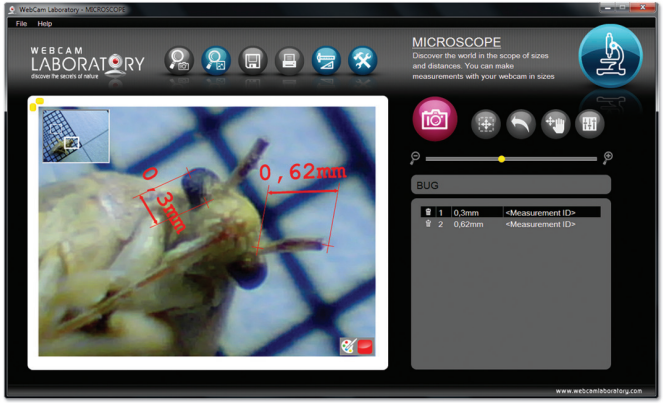
MICROSCOPE

In our world everything is relative, why should size be the exception?

Only a few of us know that webcams with focal lenses can make extra close shots. In fact, if you have a webcam with a variable focus, you also have a microscope. By using WebCam Laboratory, not only can you make microscopic measurements, but may also become familiar with a large variety of dimensions getting to know the world with respect to its measurements.

As the speed of movement is relative, the measurements of things are too. If you have a reference point, you can measure any related size or distance. WebCam Laboratory inspires users to look for comparison points in a creative way. By this, you can precisely understand the terms of units, of measurements and relativity. Unbelievable, but using a $10 webcam and WebCam Laboratory, you can make measurements as small as 1/100 mm. That means – in given circumstances – even single-celled organisms can be examined. Beyond microscopic sizes, you can make measurements in everyday dimensions or even in astronomical measurements. In the comfort of your home, you can measure the width and depth of the craters on the Moon. When you use WebCam Laboratory, you will develop your skills in mathematics, spatial orientation, and inner mapping as well as your logical thinking and creativity.





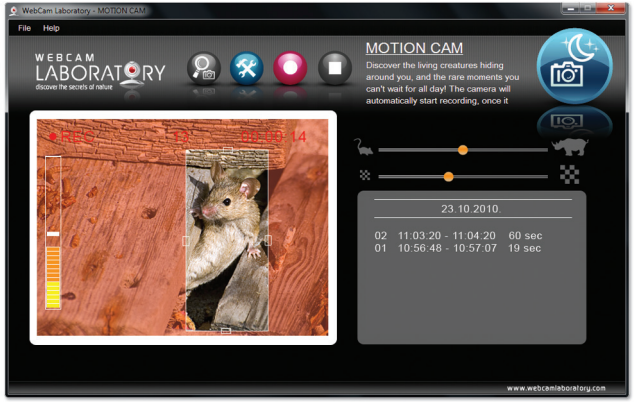
MOTION CAM

Discover and witness rare events around you!

The world around you is full of rare events that are almost impossible to "catch". You can now witness events that otherwise you would need to be extremely fortunate to see, like the intimate moments of rare, hiding animals that seldom let anyone see them. The Motion Cam function of WebCam Laboratory satisfies that instinctive curiosity in you!

You can witness events like the behavior of birds, or when a spider captures its prey. Using the Motion Cam, you don't have to wait for hours when an exciting rare occasion happens. It is enough to plan and prepare the experiment and Motion Cam will do the rest. When the camera detects movement, it immediately starts recording. When the movement stops, the Motion Cam stops recording in a couple of seconds and waits for the next occasion. Subsequently, the recordings are time stamped and are easy to analyze.

Using Motion Cam, not only rare events can be seen, but also statistical experiments can be made like the number of a certain species in the territory, etc. Your imagination is the only limit to the various experiments you can complete with WebCam Laboratory!

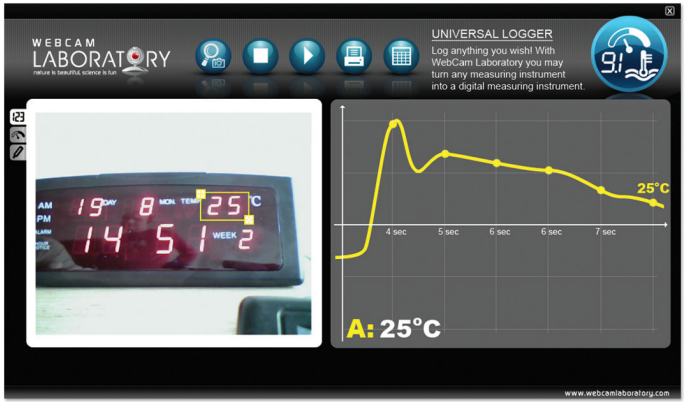


UNIVERSAL LOGGER

Measure anything, log everything!

Basically everything around us is measurable and one would think we just need the right tools to be able to measure them. But even when we have these tools, often they are separate, not connectable, and maybe even dangerous to work with making our experiments stationary, having their own limits. WebCam Laboratory offers you the possibility to digitally log and record all your measurements or even to develop your own measuring tool kits.

By connecting a camera, the software will automatically or by calibration recognize various types of measuring instruments, showing measured data in analog or digital format e.g. mercury, needle pointer, or a digital display, enabling digital recording of a single or a series of data on the connected computer. The aim is to empower users to connect otherwise not compatible measuring instruments to a computer, having any type of display where measured data visually appears, and to record and analyze measured data. With the help of the software, the outdated scrap lying in the basement may be turned into the most up to date digital measuring instruments. We may even use a mercury-filled thermometer to digitally record our measurements.

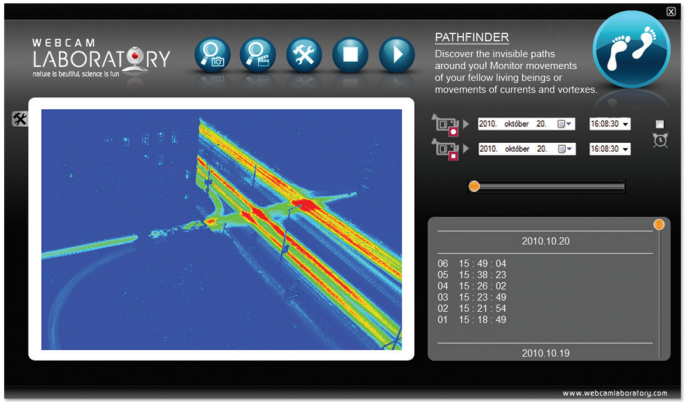


PATHFINDER

In pursuit of invisible paths!

Did you ever wonder how ants find their way back to the ant hill? WebCam Laboratory provides the opportunity to follow nature's travelers and discover their paths in an unprecedented manner.

As movements are in most cases periodic, it is difficult to draw conclusions with regards to movement habits of our surroundings. Pathfinder monitors and records movements of the specified area. The more movement there is, the more defined the path will be. If monitored for a sufficient timeframe, a rendered map of movement will evolve on our screen, later available for a great variety of interesting analysis. We may monitor the orderly, but invisible paths of ants, the unsettled and almost completely unpredictable movement of single-celled creatures, the seemingly random movement of particles suspended in a fluid (Brownian motion), and even the nature of a current or a vortex.



Creative teaching & edutainment