

# OWL<sup>2</sup>

MASTERY, NOT MEMORISATION



Move students beyond memorisation of Chemistry concepts to a higher level of thinking.



Empower students to learn Chemistry through richly dynamic problems, detailed feedback and interactive learning modules.



Students practice at their own pace, receive meaningful feedback and access learning resources to help them achieve better grades.

READ ABOUT OWLv2 IN PRACTICE  
AT WAGENINGEN UNIVERSITY

[cengage.co.uk/studentoutcomes](https://cengage.co.uk/studentoutcomes)

“Any university that offers Chemistry courses and is serious about helping their students excel should consider OWLv2, which in my experience has led to significant improvements in the grades of our students year on year”

- Erik van Rozendaal, Assistant Professor at Wageningen University



# Improved Outcomes with OWLv2



## Outperformed peers

Studies have shown that students using OWLv2 outperformed their peers in the same course without OWLv2 access.



## Improved grades

Students complete and comprehend more of their homework assignments and improve their chemistry grades.



## Improved productivity

Instructors become more productive and create assignments that inspire increased student engagement.

## Master chemistry, one concept at a time

Featuring chemist-developed content, OWLv2 is a proven system to help students succeed in Chemistry. Its unique Mastery Learning approach allows students to work through multiple related problems with advanced randomisation to develop conceptual understanding.

This question has multiple parts. Work all the parts to get the most points.

1) What mass is represented by 0.0276 mol of  $C_3H_7OH$  (2-propanol, rubbing alcohol)?  
m =  g

2) What mass is represented by 0.0276 mol of  $C_{11}H_{19}O_2$  (an antioxidant in foods, also known as BHA or butylated hydroxyanisole)?  
m =  g

3) What mass is represented by 0.0276 mol of  $C_9H_8O_4$  (aspirin)?  
m =  g

4) What mass is represented by 0.0276 mol of  $(CH_3)_2CO$  (acetone, an important industrial solvent)?  
m =  g

Submit Answer Try Another Version 5 item attempts remaining

## Learning tools for every type of student

Chemistry comes to life with the wealth of learning resources in OWLv2. Promote critical thinking and engage students with interactive media, adaptive quizzing and hundreds of book-specific practice problems.

**SIMULATION Limiting Reactants**

**Unbalanced Equations**

- $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$
- $Ca(NO_3)_2 + Na_2CO_3 \rightarrow CaCO_3 + NaNO_3$
- $PHNO_3 + Fe_2SO_4 \rightarrow PHClO_3 + FeNO_3$
- $FeCl_2 + NaOH \rightarrow Fe(OH)_2 + NaCl$
- $FeCl_2 + Na_2S \rightarrow FeS + NaCl$

**Initial Mass of NaOH**  
 0 g  20 g  40 g  60 g

**Add FeCl<sub>2</sub>**  
Add 1 g Add 10 g  
Total Mass of FeCl<sub>2</sub> added: 10 g

**Reset Experiment**

Reactant	Mass (g)
FeCl <sub>2</sub>	0.0
NaOH	32.6
Fe(OH) <sub>2</sub>	6.6
NaCl	10.8

We now explore the limiting reactant concept using a simulation that shows the masses of products that can be formed when different masses of reactants are used as a reactant. To use the simulation, select one of the five available reactions. Each reaction involves two reactants and produces two products. The initial mass of one reactant can be set to either 20 g, 40 g, or 60 g. The experiment is performed by adding the other reactant in 1 g or 10 g increments. As the reaction proceeds, the masses of all four species remaining after reacting are shown numerically as well as in the bar chart above. Clicking the **Reset Experiment** button clears the values and resets the initial masses of reactants.

Next > (Introduction)

## Access analytics in real time

Keep track of student progress and quickly identify struggling students with a powerful gradebook. Advanced analytics and reporting tools help you to easily monitor students' conceptual understanding.

**Class Aggregate Report**

Ch08 171 01 2017

Choose your report: Assignments

**Score Distributions**

Click on the color ranges to filter table.

70% - 85% 75% - 70% 80% - 85% 90% - 100%

Assignment	Due Date	Class Average	# of Students Completed
Ch 1 - Molecular Models & Conversions	February 27, 2017, 9:58 PM	82%	277 / 328
Ch 2 - Stoichiometry of Chemical Reactions	March 23, 2017, 9:58 PM	82%	3 / 1001
Ch 3 - Atomic Structure & Periodic Trends	February 27, 2017, 9:58 PM	92%	560 / 604
Ch 4 - Bonding (Lewis)	March 27, 2017, 9:58 PM	88%	10 / 1001
Ch 5 - Molecular Conversions	March 27, 2017, 10:58 PM	88%	5 / 1001
Ch 6 - Percentage Composition & Empirical Formulas	March 30, 2017, 10:58 PM	100%	4 / 1001
Ch 7 - Empirical Formulas %	March 30, 2017, 10:58 PM	100%	5 / 1001
Ch 8 - Types of Reactions	March 23, 2017, 9:58 PM	82%	12 / 1001
Ch 9 - Stoichiometry Calculations	April 6, 2017, 10:58 PM	82%	1 / 1001
Ch 10 - Stoichiometry Calculations	April 20, 2017, 10:58 PM	88%	1 / 1001
Ch 11 - Stoichiometry Calculations from Combustion Analysis	April 3, 2017, 10:58 PM	78%	4 / 1001
Ch 12 - Stoichiometry Calculations	February 27, 2017, 9:58 PM	92%	140 / 1001
Ch 13 - Stoichiometry Calculations	March 2, 2017, 9:58 PM	92%	400 / 1001

# Supporting Integration into Learning Management Systems

Cengage provides Learning Management System (LMS) integration for administrators, instructors and students. This can reduce the time required to set up courses, sign in to the system, find the current assignment, post grades and more.



OWLv2 can be integrated into most Learning Management Systems. Various integration options are available dependent on your LMS:



#### **A seamless user experience**

Access your Cengage resources seamlessly using a simple single sign-on process and your LMS login credentials.



#### **Simplified registration process**

Get students up and running faster!



#### **Content customisation and deep linking**

Customise a course to include direct links to specific activities.



#### **Automatic grade synchronisation**

Selected activities are automatically synced with the LMS gradebook\*

\*Available with selected LMS platforms



## ENSURE YOUR STUDENTS ARE PREPARED FOR LABS

LabSkills offers interactive, online pre-lab assignments allowing you to focus on the experiment itself and be confident that your class have the skills to work safely.

**Step-by-step videos** – Short videos cover safety through narrated clips, transcripts and bulleted key points. Each video is split into sections so students can work at their own pace.

**Practice opportunities** – Interactive Modules allow students to interact with equipment prior to the lab, so they are familiar with equipment set-up. The interactive modules also cover Measurement and Techniques.

**Assignable quizzes** – Quizzes test pre-lab skills and techniques using True/False, Fill in the Gap and Multiple Choice Questions.



For more information on how to integrate LMS platforms, please contact your Cengage Representative: [cengage.co.uk/contact-us](http://cengage.co.uk/contact-us)

# Digital Support & Training

## Market-leading products, service and support from day 1 and throughout your course

Using a Cengage digital solution not only delivers an engaging teaching and learning tool for your course, but also provides you with an unparalleled level of personalised service, support and training. Cengage also provides helpful training material and resources including user guides, product walk-throughs, how-to videos and on-demand webinars for every digital solution.



### Find the right solution

We work with you to help find you the right digital solution to meet your needs.



### Become an expert

We provide online or on the ground training scheduled at your convenience. Instructional videos, flyers and fully customisable PowerPoint slides help you to get your students registered in minutes.



### Prepare for class

We help with full set-up of your course by aligning assignments, class materials and due dates to your syllabus to give your students a great start.



### Keep up the momentum

We proactively check-in to ensure things are running smoothly. Local technical support is available via phone, chat and email to keep your course moving.

If you would like to discuss your teaching challenges or find out more about how OWLv2 can help your students succeed in Chemistry, please email us at [emea.edureply@cengage.com](mailto:emea.edureply@cengage.com) or contact your local Cengage representative at: [cengage.co.uk/contact-us](https://cengage.co.uk/contact-us)

For more information please visit [cengage.co.uk/support-training](https://cengage.co.uk/support-training)