Realizing the 5R Dream: Your Text, Your Way

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USERNAME: Remix
Password: ILoveRemixing!

http://Libretexts.org

https://facebook.com/Libretexts

https://twitter.com/libretexts

http://Blog.Libretexts.org

https://groups.io/g/Libretexts-Constructionforum

https://groups.io/g/Libretexts-Commons
Cannot Stop Love....
Amidst consolidating publishers and aggressive outsourcing, campuses whose leadership lacks OER literacy are vulnerable to the promises of affordability backed by commissions that third party vendors offer.

- Collene Sanders (CCCOER 5/10/19 @ 8:47)
Big Fish vs. Small Fish

WRONG WAY

RIGHT WAY
Our Mission

Implementing a **Community** built OER resource/platform/portal that is **Comprehensive** and can be **Curated** at multiple levels.

We need you

Free

living Curatable Library

“No gap Left Behind”

“No tech Left Behind”
Principal Usage Cases of the LibreTexts Project

The LibreTexts as a Curated Repository of “living” Content – largest on the net, most visited on the net

The LibreTexts as a Construction and Dissemination Platform – 100s of course

The LibreTexts as Student Assessment/Performance Tool – 60M students annually
The Textbook of the Future is not the Textbook of the past

We need to stop thinking about building OER individual textbooks...

We need to start thinking about building Interconnected OER “textlibraries”...
The LibreNet: Building the LibreVerse Community
Centralized vs. Decentralized Approaches: The LibreTexts Balancing Act

Centralized Platform
- High Stability/fidelity
- Lack of Local Control
- Effective Community Sharing
- Pooled Resources
- Efficient

Decentralized Platform
- Flexibility
- Fragmented Ecosystem
- Independent Resources
- Inefficient

LibreTexts
- Biology
- Business
- Chemistry
- Engineering
- Geosciences
- Humanities
- Mathematics
- Medicine
- Physics
- Social Sciences
- Statistics
- Workforce
LibreTexts Libraries are Powered by Mindtouch

The enterprise-grade knowledge management platform

• Wiki based infrastructure: Optimal technology for content creation, content dissemination and content networking = IDEAL COMMUNITY TECH FOR OUR GOALS

• Enterprise level platform: Can handle the load of a centralized OER portal (~1/2 million pageviews daily)

• 24/7 Monitoring Team: Constant vigilance

• Advanced Development Team: They rock!

• Proprietary not FOSS:
  • OPEN ≠ FREE
  • Proprietary ≠ Commercial
Organizational Principles

- **Centralized Platform/Portal**: Construction, Dissemination, Publishing, Usage and Analytics. Facilitates community efforts. Wiki-based technology is ideal for collaborative construction, dissemination and networking goals.

- **Host and Curate Content**: All textbooks age, which requires a community to keep alive. Team members are faculty/end users for keeping project grounded in classroom realities.

- **Comprehensive**: No topic/field is off limits (from K-12 to Graduate level).

- **Ever Growing**: Adapt to new technologies and approaches.

- **Supportive**: Facilitate new content construction and usage.
We focus on building an *Centralized* online platform

- Ease of dissemination
- Seamlessly integrates content over multiple sub-fields or across different fields
- Facilitates highly-collaborative and highly-distributed construction efforts
  - Provides a mechanism for more advanced features than a PDF or paper-based book
  - Online Homework system (adaptive)
  - 3D capabilities
  - Multimedia including videos and simulations
  - Numerical calculations infrastructure
  - Student tracking and assessment
  - Integrated annotation infrastructure
Welcome to the Chemistry Library

This Living Library is a principal hub of the LibreTexts project, which is a multi-institutional collaborative venture to develop the next generation of open-access texts to improve postsecondary education at all levels of higher learning. The LibreTexts approach is highly collaborative where an Open Access textbook environment is under constant revision by students, faculty, and outside experts to supplant conventional paper-based books.

Campus Sandboxes
You Curate

Textbooks & Textmaps
Collective Curation

Homework
Collective Curation

Ancillaries
Collective Curation

The LibreTexts libraries are Powered by MindTouch® and are supported by the Department of Education Open Textbook Pilot Project, the UC Davis Office of the Provost, the UC Davis Library, the California State University Affordable Learning Solutions Program, and Merlot. We also acknowledge previous National Science Foundation support under grant numbers 1246120, 1525057, and 1413739. Unless otherwise noted, LibreTexts content is licensed by CC BY-NC-SA 3.0. Have questions or comments? For more information contact us at info@libretexts.org or check out our status page at https://status.libretexts.org.
This module on the biological basis of behavior provides an overview of the basic structure of neurons and their means of communication. Neurons, cells in the central nervous system, receive information from our sensory systems (vision, audition, olfaction, gustation, and somatosensation) about the world around us; in turn, they plan and execute appropriate behavioral responses, including attending to a stimulus, learning new information, speaking, eating, mating, and evaluating potential threats. The goal of this module is to become familiar with the anatomical structure of neurons and to understand how neurons communicate by electrochemical signals to process sensory information and produce complex behaviors through networks of neurons. Having a basic knowledge of the fundamental structure and function of neurons is a necessary foundation as you move forward in the field of psychology.

**LEARNING OBJECTIVES**

- Differentiate the functional roles between the two main cell classes in the brain, neurons and glia.
- Describe how the forces of diffusion and electrostatic pressure work collectively to facilitate electrochemical communication.
- Define resting membrane potential, excitatory postsynaptic potentials, inhibitory postsynaptic potentials, and action potentials.
- Explain features of axonal and synaptic communication in neurons.
Add Advanced Features

- [https://libretexts.org/advanced.html](https://libretexts.org/advanced.html)
We want to “Integrate” the OER Universe

Integrate existing OER Depository/Referatories into LibreTexts

Edit and Typeset to Central Standard

Cross reference and add Meta-tags for content curations

Build an OER Remixer to let faculty rapidly construct customizable texts
## Step 1: Prepare a Remixed Map

<table>
<thead>
<tr>
<th>New Chapter number</th>
<th>New Name</th>
<th>New Section Number</th>
<th>Section from Introducory Chemistry</th>
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<tbody>
<tr>
<td>1</td>
<td>1 Chemistry and Measurement</td>
<td>1.1</td>
<td>1.1 The Scope of Chemistry</td>
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<td></td>
<td></td>
<td>1.2</td>
<td>1.2 Chemicals Compose Ordinary Things</td>
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<td>1.3</td>
<td>1.3 The Basic Units of Measurement</td>
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<td>1.4 Taking Measurements, 2.3</td>
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<td>1.5</td>
<td>1.5 Scientific Notation: Writing Large and Small Numbers</td>
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<td>1.6</td>
<td>1.6 Significant Figures: Writing Numbers to Reflect Precision</td>
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<td></td>
<td></td>
<td>1.7</td>
<td>1.7 Significant Figures in Calculations</td>
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<td></td>
<td>1.8</td>
<td>1.8 Problem Solving and Unit Conversions</td>
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<tr>
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<td></td>
<td>1.9</td>
<td>1.9 Solving Multistep Conversion Problems</td>
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<td>1.10</td>
<td>2.9 Density</td>
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<tr>
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<td>2 Atoms</td>
<td>2.1</td>
<td>2.1 Cutting aluminum until you get atoms</td>
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<td>2.2</td>
<td>2.2 Indivisible: The Atomic Theory</td>
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<td></td>
<td>2.3</td>
<td>2.3 The Properties of Protons, Neutrons and Electrons</td>
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<td>2.4</td>
<td>2.4 Elements: Defined by Their Number of Protons</td>
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<td>2.5</td>
<td>2.5 Counting Nails by the Pound</td>
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<tr>
<td></td>
<td></td>
<td>2.6</td>
<td>2.6 Counting Atoms by the Gram</td>
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<tr>
<td>3</td>
<td>3 Isotopes</td>
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<td>3.1 Isotopes - When the Number of Neutrons Varies</td>
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<td>3.2 Atomic Mass: The average Mass of an Elements Atoms</td>
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<td></td>
<td>3.3</td>
<td>3.3 The discovery of radioactivity</td>
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<td>3.4</td>
<td>3.4 The Effects of Radiation on Life</td>
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<td>3.5</td>
<td>3.5 Types of Radioactivity: Alpha, Beta and Gamma Decay</td>
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<td>3.6</td>
<td>3.6 Natural Radioactivity and Half-Life</td>
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<td>3.7 Radiocarbon Dating: Using Radioactivity to Measure the Age of Fossils and Other Artifacts</td>
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<td></td>
<td>3.8</td>
<td>3.8 Radioactivity in Medicine</td>
</tr>
</tbody>
</table>
Step 2: Remixer

The OER Remixer is a self-service tool to rapidly assemble a LibreText from existing sources. This tutorial will include both an explanation of the User Interface as well as a walkthrough of how to do basic tasks.

USERNAME: Remix
Password: ILoveRemixing!

Step 2: Remixer
Step 3: Customize The Remix

Our imagination is the only limit to what we can hope to have in the future.

— Charles Kettering —
We will Facilitate Making your Vision
Learning Analytics

Can extract information regarding student study habits.

Clear Cramming

Spring 2014

Summer (I) 2014
Physical Textbooks
LibreTexts in a Box

Internet-Free LibreTexts
Contact us for more Details

#YourTextYourWay

- https://LibreTexts.org
- dlarsen@Libretexts.org
Stage 1: Evaluation Protocols

Daily traffic for student usage of Libretexts for the LibreTexts pilot. Spikes originate from students “cramming” before exams and quizzes.
Exam Performance

Daily Wikitext usage (only ChemWiki class students)

Exam #1
Mean: 72.9%
Std: 12.4%

Exam #2
Mean: 73.65%
Std: 11.9%

The exam performances are statistically identical for both classes.
Many Variables are Measured (Propensity-Score Matching)


<table>
<thead>
<tr>
<th>Variable</th>
<th>Post-test</th>
<th>Midterm 1</th>
<th>Midterm 2</th>
<th>Final Exam</th>
<th>Total Exam Points</th>
<th>Course Grade</th>
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<tbody>
<tr>
<td>Constant</td>
<td>70.37***</td>
<td>63.89***</td>
<td>75.84***</td>
<td>38.39***</td>
<td>69.80***</td>
<td>75.05***</td>
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<td>ChemWiki (90% CI)</td>
<td>0.09 -1.22, 1.39</td>
<td>-1.45 (-3.12, .22)</td>
<td>0.34 (-1.05, 1.73)</td>
<td>-0.01 (-.72, .71)</td>
<td>-0.33 (-1.53, .87)</td>
<td>-0.48 (-1.66, .69)</td>
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<tr>
<td>Pre Assessment</td>
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<td>0.53***</td>
<td>0.35***</td>
<td>0.25***</td>
<td>0.45***</td>
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<td>First Generation</td>
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<td>-2.04</td>
<td>-0.43</td>
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<td>-1.83</td>
<td>-0.39</td>
<td>-0.66</td>
<td>-1.16</td>
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<tr>
<td>Male</td>
<td>2.59**</td>
<td>-1.24</td>
<td>1.67</td>
<td>1.11*</td>
<td>0.98</td>
<td>0.53</td>
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<tr>
<td>Previous Units</td>
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<td>-0.12***</td>
<td>-0.03</td>
<td>-0.05***</td>
<td>-0.08***</td>
<td>-0.09***</td>
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<tr>
<td>SAT Total</td>
<td>0.01***</td>
<td>0.01</td>
<td>0.01*</td>
<td>0.01**</td>
<td>0.01**</td>
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<tr>
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<td>2.56</td>
<td>0.55</td>
<td>1.00</td>
<td>1.68</td>
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<tr>
<td>Transfer</td>
<td>-0.90</td>
<td>-6.54*</td>
<td>-4.29</td>
<td>-4.27*</td>
<td>-5.03*</td>
<td>-4.20*</td>
</tr>
<tr>
<td>(R^2)</td>
<td>.26</td>
<td>.24</td>
<td>.16</td>
<td>.30</td>
<td>.30</td>
<td>.28</td>
</tr>
</tbody>
</table>

* p < .05  ** p < .01  *** p < .001

NOTE: All dependent variables are in percentage points; The equivalency margin for non-inferiority is ±2%