



# 2024

## DYNAMIC CHEMISTRY

Empowering ALL Texas Learners to Reach their Summit

**Built By Texas Educators  
For Texas Educators**

Texas based publisher with curricula  
created by over 75 current and former  
Texas educators

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TEKS-SEPs-RTCs-ELPS**

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# Kate the Chemist

## K-12 Video Series



Summit K12 has teamed up with UT Austin Professor and best-selling science author, Dr. Kate Biberdorf, to create Phenomena-based videos specifically for the 2024 Science TEKS.

- K-12 Phenomena-Based Videos
- Teacher Pre-Lab Prep Videos
- Student Pre-Lab Videos
- Full Length Virtual Science Lab Videos

## K-12 Texas Virtual Field Investigations

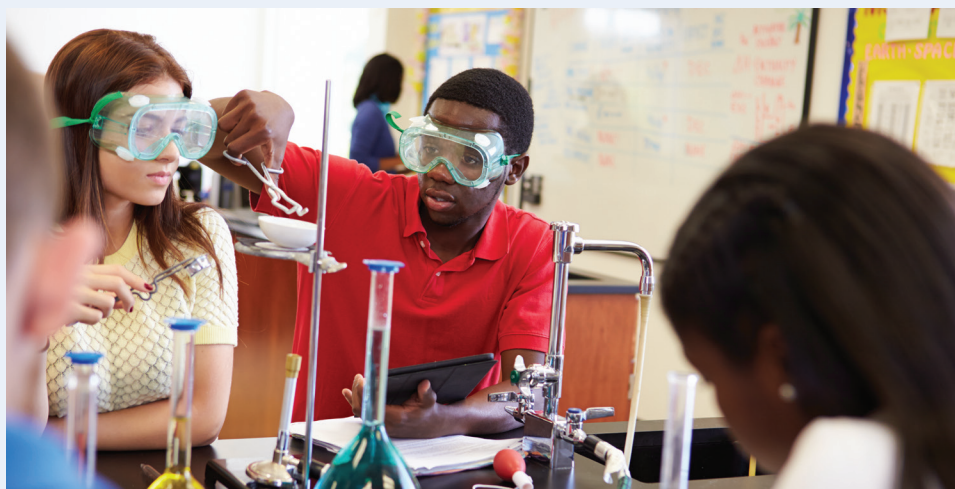
ALL K-12 students will have the opportunity to investigate phenomena throughout dozens of the most popular state parks and engineering marvels in Texas.

The 2024 TEKS Virtual Field Investigations series was created specifically for the Texas Science Adoption.



# Hands on Investigations and Virtual Labs

Comparative, Descriptive, and Experimental Investigations to engage students and support sensemaking.



Back

Video Lab

Level 3  
Level 2  
Level 1

Orbitals

3p<sub>z</sub>  
3p<sub>y</sub>  
3p<sub>x</sub>  
3s  
2p<sub>z</sub>  
2p<sub>y</sub>  
2p<sub>x</sub>  
2s  
1s

Help

Assemble a Lithium Atom

3  
Li

Try Another

You have assembled the atom correctly. Try another element at this level or select a different level.

Electrons

Lewis Valence Electron Dot Structure

Li

Orbital Diagram

Energy

3p  
3s  
2p  
2s  
1s

1s<sup>2</sup> 2s<sup>1</sup>

Electron Configuration

1s<sup>2</sup> 2s<sup>1</sup>

Reset

**PHET**  
INTERACTIVE SIMULATIONS

Includes Summit  
K12 Lab Guides  
developed to  
support the 2024  
Science TEKS.

# Concise and Complete Teacher Supports

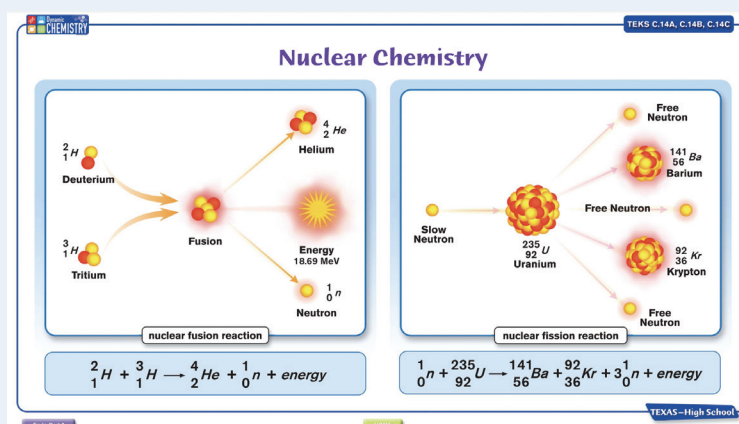
**CHEMISTRY UNIT 2**

**Unit 2: Atomic Structure**

Unit	Lesson Name	Lesson Guide	Powerpoint	Study Guide and Key	E-Poster	Interactive E-Poster
2.1	History of the Model of the Atom					
8.6B	Atoms in Chemical Reactions					
2.2	Isotopes and Average Atomic Mass					
2.3	Nuclear Chemistry					
IPC.5D	Four Fundamental Forces					
IPC.8C	Nuclear Reactions					
2.4	Electrons and the Electron Cloud					

TEKS Scaffold

TEXAS—High School



Interactive E-Poster Example

## Teacher Supports Include:

- Lesson and Lab Guides
- Scope and Sequence
- Pacing Guides
- Reports and Dashboards
- Anchoring Phenomena Table
- 3D Teaching and Learning
- Image Bank
- Assessment Bank
- Formative Assessments
- Year-Round Responsive Support
- Asynchronous Online Teacher Training
- Zoom and Onsite Professional Learning



# High Quality TEKS Lesson Videos

Dynamic CHEMISTRY

TEKS C.5B

# Properties of Families of the Periodic Table

1	2	13	14	15	16	17	18
1 H							He
2 Li	Be	B	C	N	O	F	Ne
3 Na	Mg	Al	Si	P	S	Cl	Ar
4 K	Ca						

**Periods** are the horizontal rows that move across the periodic table from left to right.

**Families or groups** are the vertical columns on the periodic table that move up or down.

1	2	13	14	15	16	17	18
H	He						
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru
Cs	Ba	Hf	Ta	W	Re	Os	Ir
Fr	Ra	Rf	Db	Sg	Bh	Hs	Mt

La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

- alkali metals
- alkaline earth metals
- transition metals
- post-transition metals
- metalloids
- nonmetals
- halogens
- noble gases
- lanthanides
- actinides
- unknown

TEXAS—High School

0:05 / 9:04

- 100% of the Chemistry Content TEKS and SEPs are supported with high quality Lesson Videos
- 100% of the Videos were specifically created for 2024 K-12 Science TEKS by Texas Science Educators and authors along with a team of Professional Documentary Film Editors and storytellers

TEKS C.7A, C.7B

# Covalent Compounds: Bonding, Naming, and Formula Writing

**covalent bonds share electrons**

Covalent bonds can be formed between nonmetals and metalloids.

**covalent bonds**

**polar covalent bond**

unequal sharing of electrons

according to bond polarity

**nonpolar covalent bond**

equal sharing of electrons

**nonelectrolyte solution**

Covalent bonds are not as strong as ionic bonds.

**no conductivity**

**nonelectrolyte**

Covalent compounds tend to have lower melting points and are nonelectrolytes.

**nonpolar compound**      **polar compound**

**nonpolar solvent**      **polar solvent**

Covalent compounds dissolve in solvents with similar polarity.

TEXAS – High School

0:03 / 14:18

# Formative and Summative Assessments and **Assessment Bank**

## Create a Custom Assessment

Assessment Name:

Number of Items:

Select Item Types:

Select Units to include:

% Dual-coded:

Unit	Unit
Unit 1 Intro to Chemistry	Unit 6 Stoichiometry
Unit 2 Atomic Structure	<b>Unit 7 Behavior of Gases</b>
Unit 3 Periodic Table	Unit 8 Energy Changes in Reactions
Unit 4 Ionic Bonding	Unit 9 Water and Solutions
Unit 5 Covalent Bonding	Units 10 Acids and Bases

Select Options, then Create

Create

The NEW Assessment appears in the table and is ready to assign to your class



Assessment Bank

Date Created	Custom Assessment Name	Avg. Score	PLD	Assign
9/28/24	Unit 2 Atomic Structure Review	65%	Approaches	
11/4/24	Unit 4 Ionic and Covalent Bonding Quiz	87%	Meets	
12/4/24	Unit 6 Stoichiometry extra credit	92%	Masters	
1/12/25	Unit 8 Energy Changes in Reactions Test	81%	Meets	
2/3/25	Unit 10 Acids and Bases Review	90%	Masters	
3/2/25	Dr. Kate's Behavior of Gases Unit Test	Start		

Create New

## Includes Items Written for the 2024 TEKS

QUESTION 4

This experiment led to the discovery of which subatomic structure? [C.3A]

Select one:

- ☐ a. orbitals
- ☐ b. neutrons
- ☐ c. electron cloud
- ☐ d. nucleus

QUESTION 8

The images below show different models of the atom throughout history. Identify the correct name for each model. Move ONE correct answer to each box. [C.4B]

Rutherford Quantum Thomson Dalton Bohr

## A decorative graphic consisting of a grid of small grey dots. A solid maroon bar is positioned on the left side, and a solid light blue bar is positioned at the bottom.




chemical energy

energía química

noun

---

Chemical energy is a type of potential energy in chemical compounds released or transformed during chemical reactions.




# precipitation reaction


reacción de precipitación

noun

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A precipitation reaction is a reaction in which two solutions of soluble ionic salts are mixed and form an insoluble salt known as a precipitate.

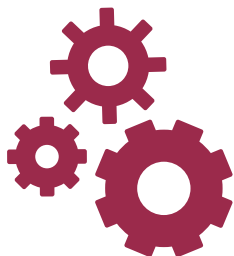


- 500-1,000 images per grade level/subject
- Minimum 15-25 images per content TEKS
- Images for all SEPs Vocabulary Words
- Images for all Science Tools Vocabulary



# Teaching Science through Phenomena using the 3D Model

## Science TEKS Content Standards



## Scientific and Engineering Practices

## Recurring Themes and Concepts



## TEKS-SEPs-RTCs Crosswalk

Subject	Category	SEPs TEKS	Dynamic Chemistry TEKS Lessons, Labs, Investigations, and Explore Activities																										Totals by SEPs			
			1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	4.1	4.2	5.1	5.2	5.3	6.1	6.2	6.3	6.4	7.1	7.2	8.1	8.2	8.3	9.1	9.2	9.3		10.1	10.2	10.3
C	Scientific and engineering practices	C.1A	X		X					X			X								X	X	X				X					8
C	Scientific and engineering practices	C.1B	X		X						X											X			X	X			X	X		8
C	Scientific and engineering practices	C.1C	X									X			X	X					X		X	X	X					X		9
C	Scientific and engineering practices	C.1D	X		X						X				X	X		X	X		X	X	X	X			X	X	X	X		14
C	Scientific and engineering practices	C.1E	X		X			X	X		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	22
C	Scientific and engineering practices	C.1F	X				X	X		X	X		X	X	X	X	X	X	X				X	X	X	X	X	X	X	X	X	21
C	Scientific and engineering practices	C.1G		X		X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	25
C	Scientific and engineering practices	C.1H	X															X		X		X										4
C	Scientific and engineering practices	C.2A				X		X	X	X				X						X												6
C	Scientific and engineering practices	C.2B		X				X		X	X	X		X		X	X	X	X	X		X		X	X	X	X	X	X	X	X	20
C	Scientific and engineering practices	C.2C		X			X		X							X	X		X	X	X		X	X	X		X		X	X		14
C	Scientific and engineering practices	C.2D	X		X												X				X	X		X		X						7
C	Scientific and engineering practices	C.3A					X				X	X		X	X	X	X	X	X	X		X		X	X	X		X	X	X		17
C	Scientific and engineering practices	C.3B	X		X			X	X	X	X	X	X			X			X			X	X		X	X	X				X	16
C	Scientific and engineering practices	C.3C	X									X	X			X	X		X			X		X		X	X			X	X	12
C	Scientific and engineering practices	C.4A	X		X	X		X		X											X	X	X		X		X				X	11
C	Scientific and engineering practices	C.4B	X			X		X		X							X															5
C	Scientific and engineering practices	C.4C	X					X																	X							3
C	Recurring themes and concepts					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	26
Totals by Unit			13	3	7	5	5	10	6	9	6	9	7	6	5	10	10	7	10	8	7	12	10	10	11	13	8	11	7	10	13	248