

Unit 4: Toxins

Chemistry

28 days

Topics from the NYC Scope and Sequence

Moles and Stoichiometry
Physical Behavior of Matter
Acids and Bases

New York State Core Curriculum Alignment

Moles and Stoichiometry: 3.3d, 3.3a, 3.3c, 3.3e, 3.3f, 3.2b
Physical Behavior of Matter: 3.1oo, 3.1pp, 3.1qq
Acids and Bases: 3.1uu, 3.1rr, 3.1vv, 3.1ww, 3.1xx, 3.1zz, 3.1yy, 3.1ss, 3.1tt

Pacing Guide (*This guide is based on 50-minute lesson length*)

Day	Living by Chemistry Lesson Title	Additional Resource
1	4.1- Toxic Reactions: Chemical Equations	
2 -3	4.2- Making Predictions: Observing Change <ul style="list-style-type: none"><i>If you can't get dry ice you can complete the lab without the dry ice station(station 1)</i>	
4-5	4.3- Spare Change: Physical vs Chemical Change <ul style="list-style-type: none"><i>You can fit this lesson into one day if you pick and choose which questions you would like the students to complete</i>	dancing gummy bear demo <ul style="list-style-type: none">Great demo to demonstrate a chemical changeMake sure it is done in a fume hood because the fumes are intenseDancing gummy bear CER
6	4.4- Some Things Never Change: Conservation of Mass	
7	4.5- Atom Inventory: Balancing Chemical Equations	
8	Additional Activity: Lab Simulation: Balancing Chemical Equations	Phet Simulation <ul style="list-style-type: none">Balancing Chemical Equations
9	4.6- What's Your Reaction? Types of Reactions	
	We suggest you skip the following lesson from Living by Chemistry because it is not necessary for Regents preparation. <ul style="list-style-type: none"><i>4.7- Lethal Dose: Toxicity</i>	
10	4.8- Make it Count: Counting by Weight <ul style="list-style-type: none"><i>To make the setup easier you can create bags with only 5 different options and split students into groups (you do not need 8-12 different kinds of objects)</i>	

11	4.9- Billions and Billions: Avogadro's Number <ul style="list-style-type: none"> You can take an extra day to teacher about significant figures as well 	
12	4.10- What's in Mole: Molar Mass <ul style="list-style-type: none"> If you don't have all the materials for the lab(ex: iron nails) you can still do the lab activity without them 	Intro to moles video
13-14	4.11-Mountains into Molehills- Mole to Mass conversions <ul style="list-style-type: none"> Students tends to struggle with mole conversion and using an analogy like the Mole House helps them have a better conceptual understanding The regents focuses a lot more on converting grams to moles and vise versa than converting moles to liters or moles to particles 	Mole House <ul style="list-style-type: none"> Explain to students that one cannot enter the gram, liter, or atom rooms unless he/she first passes through the mole room
15	4.12- How Sweet it is- Comparing Amounts <ul style="list-style-type: none"> If you did the coke vs diet coke density lab at the beginning of the year then you should skip this activity because it is very similar 	
	Recommended: <ul style="list-style-type: none"> Skip to lesson 24 to complete the mole unit before moving to to solution concentrations and acids and bases. This will allow the curriculum to flow better 	
16	4.24- Mole to Mole: Mole Ratios <ul style="list-style-type: none"> You can teach about this concept without going into the lab if you feel like it is to time consuming 	
17-18	4.25- Mole Tunnel: Stoichiometry <ul style="list-style-type: none"> It is important to review this topic but don't worry if your students are having a hard time performing a 3 step conversion. The problems tend not to be this difficult on the regent. Throw in a short mini lesson on percent composition just to make sure it is covered for the regents 	
	We suggest you skip the following lesson from Living by Chemistry because it is not necessary for Regents preparation <ul style="list-style-type: none"> 4.26- Get the Lead Out: Limiting Reactant and Percent Yield 4.27- Call Poison Control: Unit Review <ul style="list-style-type: none"> Since lessons were skipped you will want to create your own unit review 	
19	4.13- Bearly Alive: Solution Concentration <ul style="list-style-type: none"> Will be easier to grade if you make an area on the lab sheet where students need to show their work (see edited lab sheet) 	

20	<p>4.14 -Drop in: Molecular Views</p> <ul style="list-style-type: none"> • <i>If you feel short on time you could replace this lesson with a mini lesson: How to use molarity to determine moles</i> • <i>This is the last lesson in the Stoichiometry unit. Lesson 4.17 starts a new topic on Acids and Bases.</i> 	
21-22	<p>4.23- Solid Evidence: Precipitation Reactions</p> <ul style="list-style-type: none"> • Teach students how to read table F after performing this lab activity 	
	<p>Regents alignment - <i>An additional activity is required to address the following topics:</i></p> <ul style="list-style-type: none"> • <i>Include you own lessons on solubility curves covering table G, freezing point depression & boiling point elevation, and ppm(parts per million- table T)</i> 	
	<p>We suggest you skip the following lessons from Living by Chemistry because they are not necessary for Regents preparation.</p> <ul style="list-style-type: none"> • <i>4.15- Holey Moley: Preparing Solutions</i> • <i>4.16-Is it Toxic: Mystery Solutions</i> 	
23	<p>4.17- HeartBurn: Acid and Bases</p>	
24	<p>4.18- Pass the Proton: Acid-Bases Theories</p> <ul style="list-style-type: none"> • <i>Make sure to discuss common acids and bases located on K and L</i> 	
25	<p>4.19- pHoey: [H+] and Ph</p>	
	<p>4.20-Watered Down: Dilution</p> <ul style="list-style-type: none"> • <i>Can be skipped if you are in a time crunch. Not entirely regents aligned</i> 	
26	<p>4.21- Neutral Territory: Neutralization Reactions</p> <ul style="list-style-type: none"> • <i>Most important: that students come out of this lesson knowing that a neutralization reaction is a double displacement reaction in which a strong acid and strong base combine to form a salt and water.</i> 	
27	<p>4.22- Drip Drip: Titrations</p> <ul style="list-style-type: none"> • <i>If you have the materials: demonstrate how a real titration works</i> 	
28	<p>Regents alignment - <i>An additional activity is required to address the following topics:</i></p> <ul style="list-style-type: none"> • <i>Include your own lesson on indicators and using table M</i> <ul style="list-style-type: none"> ○ <i>Lesson: 6.7 covers acid base indicators but in a more complex manner</i> 	