

# Online Biology Syllabus

## **Required Textbook(s):**

Apologia Exploring Creation with Biology 2nd Edition Textbook (ISBN: 9781932012545)  
Solutions and Test Manual (ISBN: 9781932012552)

## **Course Procedure:**

Students will follow the detailed reading and homework assignments (listed below) in preparation for watching the "Online Class Session" (accessed at [catiefrates.digitalchalk.com](http://catiefrates.digitalchalk.com)).

The below indicates when students should take tests and which "Online Class Session" include grading.

Courses must be viewed in sequence (class 1, class 2, class 3), and are not available to be viewed out of order (class 9, class 3, class 8).

\* Every week students are to complete all "On Your Own" questions as homework.

**\*\* For this course to be accredited to your student as a "High School Science with Lab", you must grade the Lab Write ups thoroughly and with care.**

## **Vocabulary:**

The vocabulary portion of Biology is extensive. Students should use definitions we go over in the "Online Class Sessions" whenever possible OR use their own words to define the terms NOT copy the textbook and memorize its words (unless they have a photographic memory and retain everything they see for extensive periods of time)!

## **Tests:**

Tests should be taken as specified below, after all assigned homework including lab write ups are completed (often even the lab write ups help prepare students for the tests). We recommend that tests be taken as soon as possible after watching the "Online Class Session" where the Study Guide has been covered, as indicated below. We will grade the test together at the beginning of the "Online Class Session" as indicated below. We recommend parents watch the portion of the "Online Class Session" where tests are graded to properly grade their student's tests. (These sessions are indicated below)

## **Grading:**

We suggest factoring the following three sections into your student's grade.

## **Homework**

To grade the homework section you would include:

1. Your student's neatly completed "On Your Own Questions".
2. Your student's neatly completed "The Study Guide (or Review and Practice Problems)".

**Remember**, homework is for the student's benefit and should never be counted against them as long as it is neat and complete. The effort is what is graded on the homework. Accuracy is graded on the tests.

**The homework section = 33% of the grade.**

## **Lab Write-Ups**

To grade the “**Lab Write-Ups**”, look over each lab write-up and make sure that it is neat, and contains the 4 parts listed below. Please see the detailed lab write-up instructions below, under the “Labs” section for full details.

**\*\* For this course to be accredited to your student as a “High School Science with Lab”, you must grade the Lab Write-Ups thoroughly and with care. Lab Write-Ups can be graded with equal weight as tests.**

**Lab Write-Ups = 33% of the grade.**

## **Tests**

Factor the test grade in as the last third of the grade.

**Tests = 33% of the grade.**

Some parents prefer to only average the student’s tests for their grade and ignore the homework grading. The homework being graded is to benefit your student(s) and increase their average for work they are doing; in a school, their homework would count as part of their grade. It is not until college that only the tests are averaged for their grade and the lab write ups in college will be an entirely different grade. Grading of the course is at the parent’s discretion, parents are welcome to only factor tests grades in for the final score.

Science (as is math) is graded in colleges on a 10 point scale (90-100% is an A, 80-89% is a B, etc.) therefore I use the same grading scale for our student(s). I know the state went to a 7 point scale in a futile attempt to increase our standard of education but I prefer to stay with the college standard.

[We recommend that students complete and save all assigned work in a portfolio or notebook as evidence of course completion and credit.](#)

[After completing our science courses, if students are comfortable with the subject material, we recommend students look into taking CLEP and/or SAT II subject tests for college admissions \(to provide further evidence of your student’s subject retention\).](#) Students should use the SAT II or CLEP study manuals to properly prepare for these exams after completing our courses. [Some Universities require standardized test scores before they will accept high school science credits \(with home school and public school credits alike\).](#)

## **Labs:**

To receive a full lab credit for this course, your student must watch the labs performed in the “Online Class Sessions” (or complete them at home if you prefer) and then complete correct “Lab Write-Ups” for each of these labs. Below are instructions on how to complete a correct lab write-up.

**\*\* You are not required to perform labs at home. If you would like to perform labs at home, please refer to the textbook for needed lab materials. Suggested retailers were recommended to you in your Welcome letter.**

## **Lab Write-Up Instructions:**

### **Example Lab Write-Up**

Lab write-ups should contain the following divisions and information.

**EXPERIMENT 1.1**  
**Using a Biological Key**

(At the top of the page list the **number and name** (when giving in text) **of lab**.

4 Roman numeral designations, Skip lines between the different roman numeral sections.)

Parts I and II should be completed before watching the "Online class session" (as indicated below). Part III, calculations and IV Conclusion should be completed after watching the "Online class session".

**I. Purpose -**

Write out why/what you hope to learn by performing this lab - this info can usually be found in the introduction of the lab in the book

**II. Procedure -**

Write out a BRIEF but accurate list of the steps you will do to perform this lab, including materials to be used either at the top of this section or mentioned in the listed steps. Steps should be in a list style (NOT paragraph style) numbered as follows:

1. First we took prepared slide of...
2. Then we observed the structures listed below in the observation section...
3. Etc...

(As many steps as you need but DO NOT copy from the book. Put it in your own words and don't copy explanation portions that are listed in the book.)

**III. Observations -**

Under this heading include all labeled drawings, measurements taken in the lab, and calculations done with those measurements. If there was a problem in the actual performance of the lab, that should be explained here.

**IV. Conclusion -**

The conclusion should state the scientific fact that you were supposed to learn / observe by performing this lab. This is usually stated in the textbook either at the latter portion of the lab or in the text just after the lab. The conclusion should somehow be related to the purpose, frequently restating the purpose with the words "as observed by" and then explain how your observations supported the factual concept you have stated. The conclusion is NOT the place for your observations!!!

**Example Write up from Physical Science**

**Experiment 1.1**  
**Atoms and Molecules**

**I. Purpose** – To observe how atoms change into molecules and to learn how different atoms and molecules can be

**II. Procedure** (Notice this is short form in your own words)

1. Fill small glass  $\frac{3}{4}$  full of water.
2. Stir in 1 teaspoon of baking soda and stir well.
3. Use partially stripped copper wires (Partially stripped on both ends) to attach to 9 volt battery terminals
4. Tape one wire to each terminal securely with electrical tape (make a good connection)
5. Without letting wire ends touch, place down in baking soda water in small glass.

6. If no bubbles produced, check connection of wire to terminal.
7. Allow to run for 10 minutes.
8. Record observations and clean up.

### III. Observations

(Here you would draw diagrams and record all observations you made during the experiment. Be thorough.)

### IV. Conclusion

Atoms are the smallest stable unit in creation and molecules are made up of 2 or more atoms bound together. Molecules have unique individual properties from the atoms that make them up as seen by the copper hydroxycarbonate no longer reacting with the water like the copper did.

(Please notice the conclusion stated a FACT or definition from the text that you were supposed to be learning about and that is why we did the experiment, then that fact was tied together with the observations.)

### Questions:

Any questions are to be submitted by email or phone ([cfscienceclasses@gmail.com](mailto:cfscienceclasses@gmail.com) or 239-352-1357). Live online interaction is available by request. Please allow 48 hour response time. Longer during holiday breaks.

## Biology Syllabus

Reading assignments for each week are indicated by page numbers and include reading the labs within the assigned pages.

\* OYO = Complete all On Your Own Questions in Reading

\*\* Prep for lab = Read assigned lab, begin lab write up, by writing up the Headings, title, I. Purpose & II. Procedure

\*\*\* When completing Study Guide, the vocabulary is to be in your own words and short

\*\*\*\* Complete Lab write up = Writing up III. Observations & IV Conclusion which should be done after viewing "online class session".

\*\*\*\*\* Extra Credit Lab Write ups, parents are responsible to grade & log for extra credit on the tests

**Make sure you have watched, "Creation Interpretation Parts 1-3-Course Prequel" on Digital Chalk as a course prequel.**

### **Prep for Class 1**

1) Read text and complete all On Your Own Problems and read all experiments within pp 1-21

**Log on ([www.catiefrates.digitalchalk.com](http://www.catiefrates.digitalchalk.com)) and Watch "Biology Class 1, Part A" & "Biology Class 1, Part B"**

### **Prep for Class 2**

- 1) Read text and complete all On Your Own Problems and read all experiments within pp 21-32
- 2) Prep for lab 1.1 and read “How to Use the Microscope” found attached to this syllabus
- 3) Complete Study Guide 1

***Log on and Watch***

*"Biology Class 2, Part A" & "Biology Class 2, Part B"*

**Prep for Class 3**

- 1) Complete lab write up 1.1
- 2) Study for & take test 1
- 3) Read text and complete all On Your Own Problems and read all experiments within pp 37- 53 stopping at “Classification in Kingdom Monera”
- 4) Prep for lab 2.1. This is **not** written but actually making the cultures to bring to class for lab 2.2.

***Log on and Watch***

*"Biology Class 3, Part A" & "Biology Class 3, Part B"*

**-Test to be graded in this session.**

**Test 1- Grading**

Each answer is worth 5 points. Each individual vocabulary word is worth 5 points so 1 a-f is worth 30 points total and 8 a and 8 b are each worth 5 points so eight is worth 10 points.

**Prep for Class 4**

- 1) Read text and complete all On Your Own Problems and read all experiments within pp 53-62
- 2) Prep for lab 2.2
- 3) Complete Study Guide 2

***Log on and Watch***

*"Biology Class 4, Part A" & "Biology Class 4, Part B"*

**Prep for Class 5**

- 1) Complete lab write up 2.2
- 2) Study for and take test 2
- 3) Read text and complete all On Your Own Problems and read all experiments within pp 67-82 stopping after completing On Your Own 3.10
- 4) Prep for lab 3.1

***Log on and Watch***

*"Biology Class 5, Part A" & "Biology Class 5, Part B"*

**-Test to be graded in this session.**

**Test 2- Grading**

All worth 5 points including each vocabulary word in 1 a-c.

**Prep for Class 6**

- 1) Complete lab write up 3.1

- 2) Read text and complete all On Your Own Problems and read all experiments within pp 82-92
- 3) Prep for lab 3.2-3.3
- 4) Complete Study Guide 3

***Log on and Watch***

*"Biology Class 6, Part A & B"*

**Prep for Class 7**

- 1) Complete lab write up 3.2-3.3
- 2) Study for and take test 3
- 3) Read text and complete all On Your Own Problems and read all experiments within pp 97-112 stopping after completing On Your Own 4.10
- 4) Prep for lab 4.1-4.2

***Log on and Watch***

*"Biology Class 7, Part A & B"*

**-Test to be graded in this session.**

**Test 3- Grading**

All worth 5 points including each vocabulary word in 1a-c, and 14 a-c are worth 5 points each.

**Prep for Class 8**

- 1) Complete lab write up 4.1-4.2
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 112-120
- 3) Prep for lab 4.2-4.3
- 4) Complete Study Guide 4

***Log on and Watch***

*"Biology Class 8, Part A & B"*

**Prep for Class 9**

- 1) Complete lab write up 4.2-4.3
- 2) Study for and take test 4
- 3) Read text and complete all On Your Own Problems and read all experiments within pp 125-142 stopping at "Organic Chemistry"
- 4) Prep for lab 5.1
- 5) Lab 5.2 must be done at home over the course of the week. **This is NOT optional.** Have your results available when you watch the online class session.

***Log on and Watch***

*"Biology Class 9, Part A&B"*

**-Test to be graded in this session.**

**Test 4- Grading**

All worth 5 points including each vocabulary word and 6 a, 6b, 6c, 6d.

**Prep for Class 10**

- 1) Complete lab write up 5.1-2
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 142-156
- 3) Complete Study Guide 5

Lab 5.3 is optional for extra credit if you would like to perform it at home and write it up.

***Log on and Watch***

*"Biology Class 10, Part A&B"*

**Prep for Class 11**

- 1) Study for and take test 5
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 161-173 stopping at "Cytoskeleton"

***Log on and Watch***

*"Biology Class 11, Part A" & "Biology Class 11, Part B"*

**-Test to be graded in this session.**

**Test 5- Grading**

All worth 5 points including each vocabulary word, 6 is worth 5 points total so 6a, 6b, 6c, 6d are each worth 1.25 points (14 is only worth 5 points).

**Prep for Class 12**

- 1) Read text and complete all On Your Own Problems and read all experiments within pp 173-182 stopping at "How Cells Get Their Energy"
- 2) Prep for lab 6.1-2

***Log on and Watch***

*"Biology Class 12, Part A & B"*

**Prep for Class 13**

- 1) Complete lab write up 6.1-2
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 182-189
- 3) Complete Study Guide 6 and start studying for the test

***Log on and Watch***

*"Biology Class 13, Part A" & "Biology Class 13, Part B"*

**Prep for Class 14**

- 1) Study for and take test 6
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 195-213 stopping after completing On Your Own 7.10
- 3) Prep for lab 7.2

Lab 7.1 is optional extra credit

***Log on and Watch***

*"Biology Class 14, Part A" & "Biology Class 14, Part B"*

**-Test to be graded in this session.**

**Test 6- Grading**

All worth 5 points including each vocabulary word and 14 a, b, c, and d are worth 2 points each.

**Prep for Class 15**

- 1) Complete lab write up 7.2
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 213-222
- 3) Complete Study Guide 7

***Log on and Watch***

*"Biology Class 15, Part A" & "Biology Class 15, Part B"*

**Prep for Class 16**

- 1) Study for and take test 7
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 227-247 stopping at "Sex and Sex-Linked Genetic Traits"
- 3) Prep for lab 8.1-2

***Log on and Watch***

*"Biology Class 16, Part A" & "Biology Class 16, Part B"*

**-Test to be graded in this session.**

**Test 7- Grading**

All worth 4 points including each vocabulary word and 3 has 5 answers so in total # 3 is worth 20 points.

**Prep for Class 17**

- 1) Complete lab write up 8.1-8.2
  - 2) Read text and complete all On Your Own Problems and read all experiments within pp 247-256
  - 3) Prep for lab 8.3
  - 4) Complete Study Guide 8
- Lab 8.4 is optional extra credit

***Log on and Watch***

*"Biology Class 17, Part A" & "Biology Class 17, Part B"*

**Prep for Class 18**

- 1) Complete lab write up 8.3
- 2) Study for and take test 8

***Log on and Watch***

*"Biology Class 18, Part A" & "Biology Class 18, Part B"*

**-Test to be graded in this session.**

**Test 8 - Grading**

All answers are worth 3 points including each vocabulary word, #2 is worth 12 points total, 3 for each answer, 6, 7, and 11 are worth total 9 total so a, b, and c are worth 3 points each, each answer on 10 is worth 3 points each.

**Prep for Class 19**

**-Enjoy no homework.**

***Log on and Watch***

*"Biology Class 19, Part A" & "Biology Class 19, Part B"*

**Prep for Class 20**

1) Read text and complete all On Your Own Problems and read all experiments within pp 261-282 stopping at "Structural Homology: . . .

***Log on and Watch***

*"Biology Class 20, Part A" & "Biology Class 20, Part B"*

**Prep for Class 21**

1) Read text and complete all On Your Own Problems and read all experiments within pp 282-294  
2) Complete Study Guide 9

***Log on and Watch***

*"Biology Class 21, Part A" & "Biology Class 21, Part B"*

**Prep for Class 22**

1) Study for and take test 9  
2) Read text and complete all On Your Own Problems and read all experiments within pp 299-324  
3) Complete Study Guide 10  
Lab 10.1 is optional extra credit

***Log on and Watch***

*"Biology Class 22, Part A" & "Biology Class 22, Part B"*

**-Test to be graded in this session.**

**Test 9 - Grading**

All answers are worth 5 points each including each vocabulary word except 7 has three answers each worth 2 points so 7 is worth 6 total. We know this adds up to 101 points total but it balances out in the students favor on multiple other tests.

**Prep for Class 23**

1) Study for and take test 10

- 2) Read text and complete all On Your Own Problems and read all experiments within pp 329-342 stopping after On Your Own 11.8 and pp 350-352 stopping after On Your Own 11.14
- 3) Prep for lab 11.1, 2, 4

***Log on and Watch***

*"Biology Class 23, Part A" & "Biology Class 23, Part B"*

**-Test to be graded in this session.**

**Test 10 - Grading**

Each answer on this test is worth 4 points so each vocabulary word is worth 4 points, #3 & 4 both have two answers so they are worth 8 points each, #6 have 4 answers so it is worth 16 points, and #13 has 2 answers and is worth 8 points.

**Prep for Class 24**

- 1) Complete lab write up 11.1, 2, 4
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 342-350, 352-356
- 3) Prep for lab 11.3
- 4) Complete Study Guide 11

***Log on and Watch***

*"Biology Class 24, Part A" & "Biology Class 24, Part B"*

**Prep for Class 25**

- 1) Complete lab write up 11.3
- 2) Study for and take test 11
- 3) Read text and complete all On Your Own Problems and read all experiments within pp 361-375
- 4) Prep for lab 12.1

***Log on and Watch***

*"Biology Class 25, Part A & B"*

**-Test to be graded in this session.**

**Test 11 - Grading**

Each answer is worth 3 points each including each vocabulary word and 2a, 2b, 2c - 2e are 3 points each and 10 a-g are worth 3 points each.

**Prep for Class 26**

- 1) Complete lab write up 12.1
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 376-389
- 3) Prep for lab 12.2
- 4) Complete Study Guide 12

***Log on and Watch***

"Biology Class 26, Part A" & "Biology Class 26, Part B"

**Prep for Class 27**

- 1) Complete lab write up 12.2
- 2) Study for and take test 12
- 3) Read text and complete all On Your Own Problems and read all experiments within pp 393-419 stopping at "Class Amphibia"
- 4) Prep for lab 13.1

***Log on and Watch***

"Biology Class 27, Part A & B"

**-Test to be graded in this session.**

**Test 12 - Grading**

All answers are worth 4 points each including each a,b,c, etc. answer.

**Prep for Class 28**

- 1) Complete lab write up 13.1
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 419-423
- 3) Prep for 13.2
- 4) Complete Study Guide 13

***Log on and Watch***

"Biology Class 28, Part A & B"

**Prep for Class 29**

- 1) Complete lab write up 13.2
- 2) Study for and take test 13
- 3) Read text and complete all On Your Own Problems and read all experiments within pp 495-526
- 4) Complete Study Guide 16

***Log on and Watch***

"Biology Class 29, Part A" & "Biology Class 29, Part B"

**-Test to be graded in this session.**

**Test 13 - Grading**

All answers are worth 3 points each.

**Prep for Class 30**

- 1) Study for and take test 16
  - 3) Read text and complete all On Your Own Problems and read all experiments within pp 429-449 stopping before experiment 14.3
  - 4) Prep for lab 14.2
- Lab 14.1 is optional extra credit

***Log on and Watch***

*"Biology Class 30, Part A & B"*

**-Test to be graded in this session.**

**Test 16 - Grading**

All answers are worth 4 points each including each a,b,c, etc. answer.

**Prep for Class 31**

- 1) Complete lab write up 14.2
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 449-458
- 3) Prep for lab 14.3
- 4) Complete Study Guide 14

***Log on and Watch***

*"Biology Class 31, Part A" & "Biology Class 31, Part B"*

**Prep for Class 32**

- 1) Complete lab write up 14.3
- 2) Study for and take test 14
- 3) Read text and complete all On Your Own Problems and read all experiments within pp 463-479
- 4) Prep for lab 15.1

***Log on and Watch***

*"Biology Class 32, Part A" & "Biology Class 32, Part B"*

**-Test to be graded in this session.**

**Test 14 – Grading**

All answers are worth 5 points each including each vocabulary word and on #2 each individual answer is worth 2 points so 2a is worth 6 points, 2b is worth 6 points, etc.

**Prep for Class 33**

- 1) Complete lab write up 15.1
- 2) Read text and complete all On Your Own Problems and read all experiments within pp 480-490
- 3) Prep for lab 15.2
- 4) Complete Study Guide 15

***Log on and Watch***

*"Biology Class 33, Part A" & "Biology Class 33, Part B"*

**Prep for Class 34**

- 1) Study for and take test 15
- 2) Watch Biblical Nutrition seminar on YouTube. YouTube link included in "Biology Class 34" on Digital Chalk.

## ***Log on and Watch***

***Watch "Biology Class 34"***

### **-Test grading session**

#### **Test 15 – Grading**

All answers are worth 3 points each including each vocabulary word and a,b,c, etc. answer, also each answer on number 2 is worth 3 points each (there should be 4 answers for number 2 making it worth 12 points total) .

**For those who wish to do labs at home.**

#### **How to Use the Microscope**

1. **Always use both hands when moving the microscope. Put one hand under the base and use your other hand to hold the microscope by the arm. (Never move the microscope by grasping the ocular, lenses, or anything except the base and arm.)**
2. **Take off the plastic dust cover and plug in the microscope. (It is very important to keep the dust cover on your microscope whenever it is not being used as the image you see is only as good as your lenses and dust can scratch your lenses very easily.)**
3. **Make sure the stage is all the way down and the low power lens is in place.**
4. **Turn on light.**
5. **Place the slide on the stage with the specimen directly over the light source.**
6. **While looking through the ocular, adjust the coarse focus knob upward until the specimen comes into view.**
7. **Focus until you can see the specimen clearly using the coarse focus knob.**
8. **Center the specimen under the pointer by moving the slide carefully and re-adjust the coarse focus.**
9. **Click the middle power lens into place. (If you don't hear a "click" your lens is not in place and you won't see anything.)**
10. **Adjust the coarse focus knob until the specimen looks clear and in focus. Everyone's eyes are different. What is clear for you may not be for your lab partner.**
11. **Center the specimen under pointer again and readjust the coarse focus.**
12. **Carefully click the high power lens in place.**
13. **USING FINE FOCUS ONLY, adjust focus until the specimen can be seen. Make small adjustments up and down.**
14. **If you cannot find the specimen click back down to 100X and go back to step 9 (or even back down to 40X and step 6 if necessary). There is no shame in starting over again if necessary. Please notice, you are not lowering the stage between lens changes; the focusing process is literally adjusting the stage height.**
15. **When you are done viewing the specimen, lower the stage to the down position first, and then click to the low power lens BEFORE REMOVING THE SLIDE.**
16. **NEVER REMOVE THE SLIDE FROM THE STAGE UNLESS THE LOW POWER LENS IS IN PLACE WITH THE STAGE IN THE DOWN POSITION!!!**
17. **Remove the slide and start over to look at the next specimen.**
18. **When finished, turn off the light and unplug the microscope.**
19. **Cover the microscope with the dust cover and carefully put away all your equipment.**

**ALWAYS handle the microscope with extreme care.**

**ALWAYS put the stage down and the low power lens in place before placing a slide on the stage or removing the slide from the stage.**

**ALWAYS use lens paper ONLY to clean or wipe the lenses of a microscope.**

**ALWAYS ONLY use the fine focus when on high power (400X).**