**Exploration Education Physical Science Course
Co-op Syllabus (based on meeting 28 weeks, 1.5 – 2 hours/week)**

**GENERAL NOTES**

**TIME:** The syllabus is laid out for a co-op that meets 28 times (most common) during the year. You can adjust the lessons accordingly to shorten or length that time. One easy way to gain more time is to get the curriculum to the students a couple of weeks before your first meeting and assign the students week one or one and two (from the syllabus) before the first meeting.

**PROJECTS:** At the beginning of most sections, the student will build a project (car, circuit, etc.). They will use the project during that section’s experiments and activities. Because of this, the student should take their time building the project well. The directions on the CD are very clear. Students should be encouraged to take their time and follow all of the directions. You can either have the students build the projects at home, or in class. We have laid out this syllabus having students complete the projects at home, the experiments and activities in class. If you choose to build the projects in class, just allow enough class time and adjust the syllabus accordingly. Some thoughts on this:

1. Students build their projects at home.

Advantage: they can take their time building it making sure they do a good job.
Disadvantage: no direct teacher oversight – however the parent can oversee the building and the teacher can “fine tune” when the students bring the projects to class.

1. Students build their projects in class.

Advantage: oversight of teacher

Disadvantage: Can be challenging in class keeping all students focused and progressing at the same rate. May need longer class times on these “building” days.

**CLASS SIZE/ORGANIZATION:**

**TIPS:** We recommend the teacher go through the experiments on the CD before meeting. You don’t need to actually do the experiments before-hand, but if you have “seen” how the experiment is conducted, it well help facilitate a smooth experimentation process with the class.

**TIME:** Depending on how long you meet, your class size, and class make-up you may need to adjust the syllabus accordingly. Some helpful ideas:

* Not enough time in class to complete all the experiments/activities
	+ Just assign the unfinished experiments/activities for homework.
* Everything is finished and there is still class time left
	+ Go over logbook questions verbally to reinforce concepts the students learned. Instead of asking them as multiple choice, just reword from “which of the following best describes …” to “someone describe what …”
	+ Go over experiment results
		- If varying results, see if the students can determine why they are different
		- Ask how can the concept learned be applied in day to day life

**RESEARCH:** If as the instructor you have time, it is great to bring outside research/stories into class. This could also be an extra credit assignment for the students. Give them a topic and have them present their research findings to the class.

**Syllabus for Exploration Education Science Curriculum**

| **Week** | **Standard Course** | **Advanced Course** |
| --- | --- | --- |
|  |  |  |
| **1** | **CLASS INTRODUCTION*** **Go over this syllabus, explain what the students are expected to bring to class (EE box, logbook filled out, project if needed).**
* **Hand out curriculum boxes**
* **Complete the lesson portion of chapter 1.1 together (have students answer questions in the logbook) and the activity worksheet on the Scientific method (but not building the racer).**
* **Click through building the racer instructions to give students an idea of how the projects are built. Emphasize the following:**
	+ **Follow directions**
	+ **Take your time**
	+ **Go through trouble-shooting section if necessary.**
 | **CLASS INTRODUCTION*** **Go over this syllabus, explain what the students are expected to bring to class (EE box, logbook filled out, project if needed).**
* **Hand out curriculum boxes**
* **Complete the lesson portion of chapter 1.1 together (have students answer questions in the logbook) and the activity worksheet on the Scientific method (but not building the racer).**
* **Click through building the racer instructions to give students an idea of how the projects are built. Emphasize the following:**
	+ **Follow directions**
	+ **Take your time**
	+ **Go through trouble-shooting section if necessary.**
* **Explain that chapter 1.4, 2.4, etc. are longer lessons, and chapter 1.5, 2.5, etc. are generally formal lab write-ups.**
* **Also explain that the glider and mini-house will take extra time to build so they may want to plan some extra weekend time when they build those.**
 |
| **2** | **Complete before class:*** Chapter 1.1 – Activity (lesson was done in class)
* Chapter 1.2 – 1.3 lessons and activities (building the racer – bring to class)
* Chapter 2.1 (lesson only)

**Complete in class:*** Check student logbooks for completion of assignments
* Spend time going over student’s racers making sure they are functioning properly (go through troubleshooting section in 1.3 activity if necessary)
* Complete experiments/activities for chapter 2.1
 | **Complete before class:*** Chapter 1.1 – Activity (lesson was done in class)
* Chapter 1.2 – 1.3 lessons and activities (building the racer – bring to class)
* Chapter 1.4 - lesson
* Chapter 1.5 – Build the first part of the glider (leave at home)
* Chapter 2.1 (lesson only)

**Complete in class:*** Check student logbooks for completion of assignments
* Spend time going over student’s racers making sure they are functioning properly (go through troubleshooting section in 1.3 activity if necessary)
* Complete experiments/activities for chapter 2.1
 |
|  **3**  | **Complete before class:*** Chapter 2.2 – 3.3 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 2.2 – 3.3
 | **Complete before class:*** Chapter 2.2 – 2.4, 3.1 – 3.4 lessons only
* Chapter 2.5 – Finish building the glider

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 2.2 – 3.3
* Complete lab write-up chapter 3.5 During this experiment check student’s gliders. If available, take gliders to a large grassy area and “test them out”. Explain how to adjust wings, use a gentle toss. This may take some time.
 |
| **4** | **Complete before class:*** Chapter 4.1 – 5.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 4.1 – 5.2
 | **Complete before class:*** Chapter 4.1 – 4.4 lessons only
* Chapter 5.1 - 5.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 4.1 – 5.2
* Complete lab chapter 4.4
 |
| **5** | **Complete before class:*** Chapter 5.3 Complete vocabulary quiz
* Chapter 5.3 Study for the section review quiz (you will take this quiz in class)
* Chapter 6.1 – 6.3 lessons only

**Complete in class:*** Check student logbooks for completion of assignments and vocabulary quiz
* Take the section review quiz – Chapter 5.3
* Complete experiments/activities for lessons 6.1 – 6.3 Note: on 6.1 make sure students know how to measure. Maybe do some in-class measuring
 | **Complete before class:*** Chapter 5.3 Complete vocabulary quiz
* Chapter 5.3 Study for the section review quiz (you will take this quiz in class)
* Chapter 5.5 – build the steamboat (bring to class)
* Chapter 6.1 – 6.4 lessons only

**Complete in class:*** Check student logbooks for completion of assignments and vocabulary quiz
* Take the section review quiz – Chapter 5.3
* Have students test out there steamboats – trouble shoot if necessary.
* Complete experiments/activities for lessons 6.1 – 6.3 Note: on 6.1 make sure students know how to measure. Maybe do some in-class measuring
* Complete experiment design chapter 6.5
 |
| **6** | **Complete before class:*** Chapter 7.1 – 7.3 lessons only
* Chapter 8.1 – lesson and activity (worksheet)
* Chapter 8.2 – lesson only

**Complete in class:*** Check student logbooks for completion of assignments including 8.1 worksheet
* Complete experiments/activities for lessons 7.1 – 7.3 and 8.2
 | **Complete before class:*** Chapter 7.1 – 7.4 lessons only
* Chapter 8.1 – lesson and activity (worksheet)
* Chapter 8.2 – lesson only

**Complete in class:*** Check student logbooks for completion of assignments including 8.1 worksheet
* Complete experiments/activities for lessons 7.1 – 7.3 and 8.2
* Complete lab chapter 7.5
* If time, review for next week’s exam
 |
| **7** | **Complete before class:*** Chapter 8.3 – 9.2 lessons only
* Chapter 9.3 Complete vocabulary quiz
* Chapter 9.3 Study for section review quiz (you will take this quiz in class)

**Complete in class:*** Check student logbook for lessons and vocabulary quiz
* Take the section review quiz Chapter – 9.3
* Complete experiments/activities for lesson’s 8.3 - 9.2
 | **Complete before class:*** Chapter 8.3, 8.4 – 9.2 lessons only
* Chapter 9.3 Complete vocabulary quiz AND section review quiz
* Chapter 8.5 – study for exam

**Complete in class:*** Check student logbook for lessons and vocabulary and section review quizzes
* Take quarter exam
* Complete experiments/activities for lesson’s 8.3, 9.1 - 9.2
* Complete chapter 9.4
 |
|  | **END OF FIRST QUARTER** |  |
| **8** | **Complete before class:*** Chapter 10.1 – 10.3 lessons and activities (building the circuit – bring to class)
* Chapter 10.3 – complete worksheet
* Chapter 11.1 (lesson only)

**Complete in class:*** Check student logbooks for completion of assignments
* Spend time going over student’s circuits making sure they are functioning properly. Go through troubleshooting section in 10.3 (step 15) activity if necessary

Complete experiments/activities for chapter 11.1 | **Complete before class:*** Chapter 10.1 – 10.3 lessons and activities (building the circuit – bring to class)
* Chapter 10.3 – complete worksheet
* Chapter 10.4 – complete lesson
* Chapter 10.5 – begin building mini-house
* Chapter 11.1 (lesson only)

**Complete in class:*** Check student logbooks for completion of assignments
* Spend time going over student’s circuits making sure they are functioning properly. Go through troubleshooting section in 10.3 (step 15) activity if necessary
* Complete experiments/activities for chapter 11.1
 |
| **9** | **Complete before class:*** Chapter 11.2 – 12.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments including 10.3 worksheet
* Complete experiments/activities for lessons 11.2 – 12.2
 | **Complete before class:*** Chapter 11.2 -- 11.4 and 12.1 – 12.2 lessons only
* Chapter 11.5 – finish building mini-house (bring to class)

**Complete in class:*** Check student logbooks for completion of assignments
* Check mini-house construction, troubleshoot if necessary.
* Complete experiments/activities for lessons 11.2 -- 11.3 and 12.1 – 12.2
 |
| **10** | **Complete before class:*** Chapter 12.3 – 13.3 lessons only

**Complete in class:*** Check student logbooks for completion of assignments including 10.3 worksheet
* Complete experiments/activities for lessons 12.3 – 13.3
 | **Complete before class:*** Chapter 12.3 – 12.4, 13.1 – 13.3 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete wiring the house – lesson 12.5
* Complete experiments/activities for lessons 12.3 and 13.1 – 13.3
 |
| **11** | **Complete before class:*** Chapter 14.1 – 15.1 lessons only
* Chapter 14.2 Complete worksheet activity
* Chapter 14.3 Take vocabulary quiz
* Chapter 14.3 Study for section review quiz (you will take this quiz in class)

**Complete in class:*** Check student logbooks for completion of assignments including 14.2 worksheet and vocabulary quiz
* Take the section review quiz – 14.3
* Complete experiments/activities for lessons 14.1 and 15.1
 | **Complete before class:*** Chapter 14.1 – 14.4 and 15.1 lessons only
* Chapter 14.2 Complete worksheet activity
* Chapter 14.3 Take vocabulary quiz
* Chapter 14.3 Study for section review quiz (you will take this quiz in class)

**Complete in class:*** Check student logbooks for completion of assignments including 14.2 worksheet and vocabulary quiz
* Take the section review quiz – 14.3
* Complete experiments/activities for lessons 14.1 and 15.1
* Complete lab – lesson 14.5
 |
| **12** | **Complete before class:*** Chapter 15.2 – 16.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 15.2 – 16.2
 | **Complete before class:*** Chapter 15.2 – 15.4 and 16.1 – 16.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 15.2 – 16.2
* Complete lab – lesson 15.5
 |
| **13** | **Complete before class:*** Chapter 16.3 – 17.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lesson 16.3
* Build motor in class – lessons 17.1 and 17.2
 | **Complete before class:*** Chapter 16.3 – 16.4 and 17.1 – 17.2 lessons only
* Chapter 17.5 – study for exam

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lesson 16.3
* Build motor in class – lessons 17.1 and 17.2
* If time, review for next week’s exam
 |
| **14** | **Complete before class:*** Chapter 17.3 – 18.2 lessons only
* Chapter 18.3 Complete vocabulary quiz
* Chapter 18.3 Study for section review quiz (you will take this quiz in class)

**Complete in class:*** Check student logbook for lessons and vocabulary quiz
* Take the section review quiz – 18.3
* Complete experiments/activities for lesson’s 17.3 - 18.2
 | **Complete before class:*** Chapter 17.3 – 17.4 and 18.1 – 18.2 lessons only
* Chapter 18.3 Complete vocabulary quiz AND section review quiz
* Chapter 17.5 – study for exam

**Complete in class:*** Check student logbook for lessons and vocabulary and section review quizzes
* Take quarter exam
* Complete experiments/activities for lesson’s 17.3 - 18.2
* Watch video from lesson 18.4 and answer question
 |
|  | **END OF SECOND QUARTER** |  |
| **15** | **Complete before class:*** Chapter 19.1 – 19.3 lessons and activities (building the balance scale – bring to class)
* Chapter 20.1 (lesson only)

**Complete in class:*** Check student logbooks for completion of assignments
* Spend time going over student’s balance scales making sure they are functioning properly. Go through the “how to use” section of 19.3’s activity
* Complete experiment/activity for chapter 20.1
 | **Complete before class:*** Chapter 19.1 – 19.3 lessons and activities (building the balance scale – bring to class)
* Chapter 19.4 complete lesson
* Chapter 20.1 (lesson only)

**Complete in class:*** Check student logbooks for completion of assignments
* Spend time going over student’s balance scales making sure they are functioning properly. Go through the “how to use” section of 19.3’s activity
* Complete lab for chapter 19.5
* Complete experiments/activities for chapter 20.1
 |
| **16** | **Complete before class:*** Chapter 20.2 – 21.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 20.2 – 21.2
 | **Complete before class:*** Chapter 20.2 – 21.2 lessons only
* Chapter 20.4

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 20.2 – 21.2
* Complete lab for chapter 20.5
 |
| **17** | **Complete before class:*** Chapter 21.3 – 22.2 lessons only
* Chapter 22.3 Take vocabulary quiz
* Chapter 22.3 Study for section review quiz (you will take this quiz in class)

**Complete in class:*** Check student logbooks for completion of assignments and vocabulary quiz
* Take section review quiz – 22.3
* Complete experiments/activities for lessons 21.3, 22.1 and 22.2
 | **Complete before class:*** Chapter 21.3 – 22.2 lessons only
* Chapter 22.3 Take vocabulary quiz
* Chapter 22.3 Study for section review quiz (you will take this quiz in class)
* Chapter 21.4 complete lesson

**Complete in class:*** Check student logbooks for completion of assignments and vocabulary quiz
* Take section review quiz – 22.3
* Complete experiments/activities for lessons 21.3, 22.1 and 22.2
* Complete 21.5 lab
 |
| **18** | **Complete before class:*** Chapter 23.1 – 24.1 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 23.1 – 24.1
 | **Complete before class:*** Chapter 22.4
* Chapter 23.1 – 23.4 and 24.1 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete lab 22.5 and 23.5 (these are shorter labs)
* Complete experiments/activities for lessons 23.1 – 24.1
 |
| **19** | **Complete before class:*** Chapter 24.2 – 24.3 lessons only
* Chapter 25.1 lesson and activity (grow crystals) Bring crystals to class
* Chapter 25.2 lesson only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 24.2, 24.3, and 25.2
* Take a look at the student’s crystals, discuss activity 25.1
 | **Complete before class:*** Chapter 24.2 – 24.3 and 24.4 lessons only
* Chapter 25.1 lesson and activity (grow crystals) Bring crystals to class
* Chapter 25.2 lesson only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 24.2, 24.3, and 25.2
* Take a look at the student’s crystals, discuss activity 25.1
* Complete lab 24.5
 |
| **20** | **Complete before class:*** Chapter 25.3 lessons only
* Chapter 26.1 – complete worksheet
* Chapter 26.1, 26.2 lessons and build the rocket. Bring it to class
* Chapter 26.3 lesson only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 25.3
* Test rockets as a group – 26.3
 | **Complete before class:*** Chapter 25.3 and 25.4 lessons only
* Chapter 26.1 – complete worksheet
* Chapter 26.1, 26.2 lessons and build the rocket. Bring it to class
* Chapter 26.3 lesson only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 25.3
* Complete lab 25.5
* Test rockets as a group – 26.3
* If time, review for next week’s exam.
 |
| **21** | **Complete before class:*** Chapter 27.1 – 27.2 lessons only
* Chapter 27.3 Take vocabulary quiz
* Chapter 27.3 Study for section review quiz (you will take this quiz in class)

**Complete in class:*** Check student logbooks for completion of assignments and vocabulary quiz
* Take section review quiz – 27.3
* Complete experiments/activities for lessons 27.1 – 27.2
 | **Complete before class:*** Chapter 26.4 – complete lesson
* Chapter 26.5 – begin studying for exam
* Chapter 27.1 – 27.2 lessons only
* Chapter 27.3 Take vocabulary quiz
* Chapter 27.3 Take section review quiz

**Complete in class:*** Check student logbooks for completion of assignments, vocabulary and section review quizzes
* Take quarter exam
* Complete experiments/activities for lessons 27.1 – 27.2
 |
|  | **END OF THIRD QUARTER** |  |
| **22** | **Complete before class:*** Chapter 28.1 – 28.3 lessons and activities (building the uno-guitar – bring to class)
* Chapter 28.3 Complete activities worksheet
* Chapter 29.1 (lesson only)

**Complete in class:*** Check student logbooks for completion of assignments and worksheet
* Spend time going over student’s uno-guitars making sure they are functioning properly
* Complete activity for 28.2
* Complete activity for 29.1– pitch. Fine tune uno-guitars
 | **Complete before class:*** Chapter 28.1 – 28.3 lessons and activities (building the uno-guitar – bring to class)
* Chapter 28.3 Complete activities worksheet
* Chapter 28.4 – complete lesson
* Chapter 29.1 (lesson only)

**Complete in class:*** Check student logbooks for completion of assignments and worksheet
* Spend time going over student’s uno-guitars making sure they are functioning properly
* Complete activity for 28.2
* Complete activity for 29.1– pitch. Fine tune uno-guitars
* Complete lab – 28.5
 |
| **23** | **Complete before class:*** Chapter 29.2 – 30.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 29.2 – 30.2
 | **Complete before class:*** Chapter 29.2 – 29.4, 30.1, 30.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 29.2 – 30.2
* Complete lab 29.5
 |
| **24** | **Complete before class:*** Chapter 30.3 – 31.3 lessons only
* Chapter 31.2 – complete activity worksheet
* 31.3 Take vocabulary quiz.
* 31.3 Study for section review quiz (you will take this quiz in class)

**Complete in class:*** Check student logbooks for completion of assignments and vocabulary quiz.
* Complete experiments/activities for lessons 30.3, 31.1, 31.2
* Go over as group 31.2 worksheet
* Take section review quiz 31.3
 | **Complete before class:*** Chapter 30.3, 30.4, 31.1 – 31.3 lessons only
* Chapter 31.2 – complete activity worksheet
* Chapter 30.5 – build mini-house roof (bring to class)
* 31.3 Take vocabulary quiz.
* 31.3 Study for section review quiz (you will take this quiz in class)**Complete in class:**
* Check student logbooks for completion of assignments and vocabulary quiz.
* Complete experiments/activities for lessons 30.3, 31.1, 31.2
* Go over as group 31.2 worksheet
* Check mini-house roof chapter 30.5
* Take section review quiz 31.3
 |
| **25** | **Complete before class:*** Chapter 32.1 – 32.2 lessons and activities: build solar fan (bring to class)
* Chapter 32.1 – complete activity worksheet
* Chapter 33.1 lesson only

**Complete in class:*** Check student logbooks for completion of assignments.
* Spend time going over student’s solar fans making sure they are functioning properly.(Chapter 32.2 step 13)
* Complete activity 33.1
 | **Complete before class:*** Chapter 32.1 – 32.2 lessons and activities: build solar fan (bring to class)
* Chapter 32.1 – complete activity worksheet
* Chapter 32.4 lesson
* Chapter 33.1 lesson only

**Complete in class:*** Check student logbooks for completion of assignments.
* Spend time going over student’s solar fans making sure they are functioning properly (Chapter 32.2 step 13)
* Complete lab 32.5
* Complete activity 33.1
 |
| **26** | **Complete before class:*** Chapter 33.2 – 34.2 lessons only

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 33.2 – 34.2
 | **Complete before class:*** Chapter 33.2 – 33.4, 34.1, and 34.2 lessons only
* Chapter 33.5 Come prepared for experiment challenge

**Complete in class:*** Check student logbooks for completion of assignments
* Complete experiments/activities for lessons 33.2 – 34.2
* Complete experiment challenge 33.5 – could be done as a group
 |
| **27** | **Complete before class:*** Chapter 34.3 – 35.3 lessons only
* Chapter 35.3 – complete activity worksheet

**Complete in class:*** Check student logbooks for completion of assignments.
* Check 35.3 worksheet
* Complete experiments/activities for lessons 34.3 – 35.2
 | **Complete before class:*** Chapter 34.3, 34.4, 35.1 – 35.3 lessons only
* Chapter 35.3 – complete activity worksheet

**Complete in class:*** Check student logbooks for completion of assignments.
* Check 35.3 worksheet
* Complete experiments/activities for lessons 34.3 – 35.2
* Complete 34.5 lab
* If time, review for next week’s exam.
 |
| **28** | **Complete before class:*** Chapter 36.1 – 36.2 lessons only
* Chapter 36.3 Take vocabulary quiz
* Chapter 36.3 Study for section review quiz (you will take this quiz in class)

**Complete in class:*** Check student logbooks for completion of assignments and vocabulary quiz
* Take section review quiz – 36.3
* Complete experiments/activities for lessons 36.1 – 36.2
 | **Complete before class:*** Chapter 36.1 – 36.2, 36.4 lessons only
* Chapter 36.3 Take vocabulary quiz AND section review quiz
* Chapter 35.5 – study for exam

**Complete in class:*** Check student logbook for lessons and quizzes
* Take quarter exam
* Complete experiments/activities for lessons 36.1 – 36.2
 |
|  | **END OF FOURTH QUARTER** |  |