

		<h2 style="color: red;">Seattle University – Lesson Plan Template</h2>	
Name:	Francine Estranero	Lesson Title:	Horizontally Launched Objects
School:	TBD	Subject:	Physics
Grade Level:	11 th – 12 th	Duration of Lesson (minutes):	60

PART 1. OVERVIEW
UNIT FOCUS
What is the focus of the unit? (1-2 sentences) (What are the unit level pursuits relevant to this lesson?)
This unit is used to introduce the concepts of 1-dimensional and 2-dimensional motion and how it can be used to predict the motion of objects. Kinematic equations are going to be used to predict and describe mathematically the motion of falling or launched objects.
LESSON FOCUS
Briefly summarize the focus and purpose of this lesson. Where does this lesson fall in your unit and how does it support students' learning progress? (1-2 sentences)
This lesson will be the second or third lesson, its purpose is to work through how to solve certain types of horizontal motion projectile problems. The first lessons will introduce the vocabulary and equations separately from the mathematical concepts and this will be an application of the mathematical concepts that go into solving specific types of projectile motion.

PART 2. CONTEXT OF LEARNING
Describe your students:
How many students do you have? As best as possible, describe the make-up of the class, including the total number and students' self-identified genders and ethnicities. Try to ascertain the number of students on FRL, students with IEPs or 504s, multilingual students (including languages spoken), and any other relevant information. Include classroom arrangement, norms, and important elements of the learning environment that could be relevant for this lesson.

In my observation class, the 11th and 12th graders that are in this physics class are primarily people of color. In a full class period, there are about 20 individual students. There are three students who speak exclusively Spanish and rely on the teacher’s automatic translations to participate in classwork and understand the content. There are some students who receive IEPs, but they do not reliably attend class throughout the quarter.

Three of the multilingual students all speak Spanish but they sit on other sides of the classroom and do not choose to interact with each other. They have varying levels of understanding but rely heavily on the use of real-time translations of things said by the teacher in the classroom.

This specific class period is very quiet and contains more 11th graders than 12th, they all sit at tables in groups of 3-4.

PART 3a. LESSON OBJECTIVES, STANDARDS, AND ASSESSMENT

Lesson Objectives chart

In the space below, list 2-3 Lesson Objectives and the associated assessment information. Label each according to the pursuit (identity, intellect, skills, criticality, joy) and, if applicable, align with a National or State Standard. Add rows as needed. Link or embed assessment tools and criteria.

National/State Standards <small>If applicable, cut & paste the relevant state/national standard (e.g., CCSS, NGSS, CASEL)</small>	Lesson Objectives <small>(Label as <i>identity, intellect, skills, criticality, joy</i>)</small> <small>Use this sentence frame to write your Objectives:</small> <ul style="list-style-type: none"> Students will be able to... [action verb] + topic 	Assessment & Evidence of Learning <ol style="list-style-type: none"> How will you know the students are successful in meeting the objective? Describe what you will look or listen for. What assessment tool (e.g. <i>graphic organizer, exit ticket, quiz, etc.</i>) will you use to make learning visible? Include evaluation tools, if applicable (e.g., rubric, checklist, scale, answer key).
	Students will be able to turn physics story problems into the variables they need to solve horizontal projectile motion problems. (INTELLECT)	The warm-up will focus on taking the variables out of a story-problem so this will be a way to check on their understanding.
	Students will be able to identify which kinematic equation they need to use based on the variables given in a horizontal projectile motion problem. (SKILL)	During the initial IP, there will be various times for call-response. There will also be a group activity where they solve a problem together that demonstrates this skill.

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Student friendly Learning Targets:
Translate your Instructional Objectives into **1-2 student-friendly learning targets**, expressing the main goal(s) of the lesson. Use this sentence frame for guidance: ***I can + [action verb] + [topic] + [assessment tool]***.
Example: *I can show the steps to solve a math equation in my quiz.*

I can...
I can identify the variables from a story-problem by breaking them down into their components.

PART 3b. LANGUAGE & LITERACY DEMANDS & SUPPORTS

As you design this lesson, take some time to consider the language and literacy that is central to the learning. With specific students in mind, describe the language and literacy that may require instructional supports in order for students to be successful.

Language & Literacy Necessary for Learning	Language & Literacy Supports
<p><i>What are you asking students to do when they listen, speak, read, or write that is central to the learning? With your specific students in mind, what may be demanding or challenging? Think about vocabulary, sentence-level academic language, broader discourse structures, texts and writing requirements.</i></p>	<p><i>What supports (instruction, practice, material scaffolds) do your specific students need to effectively engage with the content & share their ideas? For example, you might need to provide “light touch” vocabulary support, table tents with oral or written language sentence stems, model how to work with text, graphic organizer for a writing task, etc.</i></p>
<p>They need to read story-problems with content specific language that hints at the variables they need to then solve the problem with.</p> <p>They need to also be able to express the things they are learning verbally with each other when they work in groups.</p>	<p>We will have examples of what clues they look for in the problem, they have their own work to refer to for support with taking out the variables from the problems.</p> <p>Sentence starters for how to talk about physics specific problems will be presented.</p>

Language Objective for Multilingual Learners:

Practice drafting a Language Objective for multilingual students. Choose ONE of the language or literacy demands you identified in the table above Use this sentence frame or an approximation: *Students will be able to [verb] orally/in writing [topic]*. Language Objectives are intended to be shared with students so they can monitor their own learning.

Example: *I can... explain orally and in writing the steps to solve the math equation.*

I can...

I can orally and in writing identify the known and unknown variables from a kinematics story problem.

PART 4. STUDENT-CENTERED PLANNING. What do I know about my students that will inform my instruction?

Who are my students and what prior academic knowledge/skills, cultural and linguistic assets and funds of knowledge do they bring?

What do you know about your students' academic skills and knowledge that relates to this specific lesson? What do you already know or *need to know* about their interests, out of school experiences, and cultural & linguistic assets that has informed your design of this specific lesson? Do you anticipate any preconceptions or misunderstandings that will need to be addressed? Identify considerations for students with diverse learning needs (IEPs/504s, MLLs), including possible barriers to learning.

I would need to know what previous knowledge they have in terms of forces and the study of motion of objects. I would also need to know how much algebraic background they are coming in with to determine if I would need to pre-teach algebraic skills as well. I would want to learn how to explain these concepts in Spanish maybe with an emphasis on vocabulary, so the MLL students are able to still understand the core concept of what is important.

PART 5. MATERIALS AND RESOURCES. What do I need to teach this lesson?

- Identify all materials and resources needed for this lesson.
- Attach or [hyperlink](#) all student materials, slide decks, readings, videos, and assessment instruments to this lesson.

[MICROTEACHING 101.pptx](#)

PART 6. IMPLEMENTATION OF THE LESSON. What will teacher and students do and say? How will the teacher support students to meet the learning targets?

Describe below exactly how each part of your lesson will go. Use relevant concepts and strategies from coursework. Remember that a lesson should have the following **General Elements of Lesson Design**: *Anticipatory Set, Sharing the Learning Targets & Purpose, Instruction, Checks for Understanding, and Closure*. You may add boxes to account for additional activities if needed.

Time Location Grouping	Activity/Task (e.g., Anticipatory set, Sharing LT T& purpose, guided practice, group work, check for understanding, closure).	What the teacher does Describe what you will do to support students' learning. Include information related to classroom community routines, procedures, and transitions. <i>SCRIPT ONLY: The purpose of the lesson, key questions & instructions</i>	What the students do Describe what you want students to be doing at each phase of the lesson. Include anticipated student responses, struggles, and knowledge/skill gaps.
4	CHECK-IN	Welcoming in students, getting situated for the lesson Read the slides, then try and one on one with each student before they think-pair-share with each other. THE CHECK-IN ASKS THEM TO WRITE DOWN WHAT VARIABLES ARE NEEDED FOR THE KINEMATIC EQUATIONS	They will answer the check-in problem on the board, using a weekly sheet showing that they are participating in the warm-up
1	AGENDA	INTRODUCE THE AGENDA FOR THE DAY/OVERVIEW OF THE THINGS THAT WILL BE COVERED	
2	LTS	POPCORN AROUND THE ROOM TO READ EACH LEARNING TARGET	Students will read out loud the different LTs and write them (in their own words) in their notes for what their goals are for the day
3	INTRODUCE PROBLEM TYPES	SHOW A VISUAL REPRESENTATION OF EACH TYPE OF PROBLEM FOR HORIZONTAL MOTION	
5	STUDENT TALK ABOUT	WRITING ON THE BOARD OR SOMEWHERE TO SHOW	STUDENTS WILL TALK TO EACH

	DIFFERENCES AND SIMILARITIES BETWEEN PROBLEM TYPES	WHAT THE MAIN DIFFERENCES ARE, ASKING STUDENTS TO SHARE OUTLOUD (WARM CALLING)	OTHER ABOUT THE MAIN DIFFERENCES BETWEEN THE TYPES OF PROBLEMS
5	PROBLEM TYPE 1 (CLASS INTRODUCTION)	HIGHLIGHT WHAT AN EXAM QUESTION OF THIS TYPE WILL LOOK LIKE, BREAKING DOWN THE LANGUAGE INTO EASY TO BITE CHUNKS.	WRITING DOWN THE DIFFERENCES OR LOOKING FOR WAYS TO REMEMBER TRICKS THAT WORK FOR THEIR MEMORIZATION ON HOW TO IDENTIFY THIS KIND OF PROBLEM
10	STUDENTS TAKE VARIABLES OUT OF THE PROBLEM	SET UP THE NEXT STUDENT INTERACTION SECTION, REPEAT THE INSTRUCTIONS AS NEEDED AND WALK AROUND MAKING EYE CONTACT WITH STUDENTS WHO MAY NEED MORE SUPPORT, DOUBLE CHECKING IN WITH MLL STUDENTS	THEY WILL BE WORKING IN GROUPS OF UP TO 2, TO TAKE OUT THE VARIABLES IN THE RIGHT DIRECTIONS FROM THE STORY-PROBLEM
10	ALGEBRAIC PROBLEM SOLVING (CALL-RESPONSE)	WORK ALGEBRAICALLY THROUGH THE PROBLEM GOING THROUGH EACH STEP FROM THE BEGINNING TO THE END AND THE REASONING AS TO WHY IT GOES A SPECIFIC WAY <i>Highlight the way that things can be done in different ways, like starting with horizontal equation to find time and then using that to do vertical motion to find distance or vice versa.</i>	STUDENTS WILL BE WORKING INDIVIDUALLY TO FOLLOW THE MATH, CALL AND RESPONSE WILL ASK FOR STUDENTS TO INTERJECT WITH EITHER THE NEXT STEP OR A QUESTION
15	STUDENT GROUP PROBLEM SOLVING	HOVER AROUND THE ROOM, DOING ONE ON ONE CHECK-INS WITH STUDENTS/GROUP ABOUT THEIR PROBLEM SOLVING	WORKING IN TABLE GROUPS TO SOLVE THROUGH A PROBLEM SIMILAR TO THE ONE WE COVER AS A CLASS
5	EXIT TICKET	ANY QUESTIONS/COMMENTS ABOUT WHAT THEY COVERED (VERBAL USUALLY) REAFFIRMING	SHARING THEIR QUESTIONS IN A WHOLE-CLASS SYSTEM WHILE

		HOMework QUESTIONS (PAPER SLIP) FOR CONFIDENCE IN CONTENT/QUESTIONS	WRITING OUT THEIR PAPER SLIP FOR EOD QUESTIONS/CONFIDENCE RANKING
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PART 7. COMMENTARY ON INSTRUCTIONAL DESIGN

Directions: Either in 1-2 paragraphs (APA format) or a brief video, describe your lesson design, drawing on relevant authors or theory (from current or prior MIT courses) that informed your instructional decisions. Describe how you have developed the lesson using knowledge of your students and how you think your lesson design supports student learning. Finally, reflect on your process designing the lesson – what worked well and what will you do differently next time?

I like the way that this is structured, it allows for a bit of unstructured learning with the end being rooted in group work and focusing on recreating something that we cover as a class. I like the call and response “warm calling” that allows for students to be involved when doing something like math as a class. I think that a lot of the warm calls will have to be prepared for by asking guiding questions, “What do you think happens next?” or “What’s the next step?” or “What do we think we need next?”. I know that a lot of students don’t like calling out the answer so constantly providing reassurance that calling out the answer is okay. I want to emphasize working in groups and fostering a collaborative environment which comes from working together.

I wanted to also emphasize the importance of knowing how to use both the math skills and the physics skills, so I knew that I needed to focus on highlighting the actual hard skill of doing the math. That’s why a big portion of this is “follow the leader” style with a bigger emphasis on group problem solving.

PART 8. REFERENCES

Directions: In alphabetical order, list the references you used to design this lesson plan using APA style.

- **BOOKS:** Last name, N. (Year). *Title of the Book* (Edition). Publisher.
- **JOURNAL:** Last name, N. & Last name, N. (Year). Title of the article. *Title of the Journal*, Number(Issue), pages.
- **WEBSITE:** *Title of the page* (Year, Month Date). Site name. Retrieved Month day, Year, from URL.
- **AI:** OpenAI. (Year of the version you used). Model of AI used (Month Day version) [kind of model]. For example:
OpenAI (2023). ChatGPT (August 30 version) [Large language model]. Citations: (OpenAI, 2023).

[Go to [APA Owl](#), for additional guidance or in case your source is not listed in the prior examples]

Horizontally Launched Projectile Problems <https://www.physicsclassroom.com/class/vectors/Lesson-2/Horizontally-Launched-Projectiles-Problem-Solving>
Retrieved March 13, 2026.

