

# Da Vinci Understanding by Design and Differentiated Instruction PROJECT TEMPLATE

Title: CSI Da Vinci Designer(s): Kate Garrido Course: Engineering 10

<u>Big Ideas/Understandings</u>	<u>Essential Questions</u>
<p style="text-align: center;"><i>Require “uncoverage” because they are not “facts” to the novice, but unobvious inferences drawn from facts</i></p> <ol style="list-style-type: none"> <li>1. <i>Students will understand that ... <b>the scientific method is a way of collecting and organizing data; the order of the periodic table and periodic trends; concrete evidence is needed to prove a statement</b></i></li> <li>2. What specific generalizations about big ideas are desired?</li> </ol> <p><i>We can use what we know about the scientific method to solve a crime. Students will create their own crime scene (must be “solvable”) that other teams will use the scientific method to solve. Once evidence is collected, it must be organized and later analyzed and interpreted. Each team will have a list of suspects and their information so investigators can make an appropriate conclusion. Upon practicing organization, we will discuss the periodic table and why is it arranged in such a way, and how we can make our own periodic tables.</i></p> <ol style="list-style-type: none"> <li>3. What misunderstandings are predictable?</li> </ol> <p><i>Students may have trouble staying consistent in following all of the steps of the scientific method, as well as organizing their data and evidence properly. They also may have a hard time understanding the periodic table and its trends. The crime scene creations may also be tough for students, so they will need guidance for what is needed.</i></p>	<p>Are arguable, recurring, and thought-provoking questions that will guide inquiry and point toward the big ideas of the project</p> <ul style="list-style-type: none"> <li>• <i>Have no one obvious right answer.</i></li> <li>• <i>Raise other important questions.</i></li> <li>• <i>Address the philosophical or conceptual foundations of a discipline.</i></li> <li>• <i>Recur naturally.</i></li> <li>• <i>Are framed to provoke and sustain student interest.</i></li> </ul> <p>What provocative questions will foster inquiry, understanding, and transfer of learning?</p> <p>Driving Question: <b>*** Science doesn’t lie, but how reliable is the human influence behind the criminal justice system in the US?</b></p>

## What key knowledge and skills will students acquire as a result of this unit?

<u>Knowledge</u> - What is the key knowledge needed to develop the desired understandings?		<u>Skills</u> - What should they eventually be able to do as a result of such knowledge and skill? (Interpret, explain, apply)	
Basic Knowledge	Advanced Knowledge	Basic Skills	Advanced Skills
<i>All students will know . . . <b>scientific method, measurement, periodic table groups and families and their basic properties, linear equations</b></i>	<i>Some students will also know . . . <b>Periodic trends, systems of linear equations</b></i>	<i>All students will be able to... <b>apply the scientific method to a real life situation, identify elements and their properties correctly, solve and write a linear equation relating to their project</b></i>	<i>Some students will also be able to... <b>Use periodic trends to make predictions, solve and write their own systems of linear equations both graphically and algebraically</b></i>

**How will students show what they know?**

**Product, Product Components, and Assessments**

*What are your deliverables?*

***Crime Scene Design and Logistics, Crime Scene Investigation Confidential Folder, Crime Scene Report written in Scientific Language, Not so Periodic Table***

*What formative & summative assessments will be used?*

***Quizzes on basic atoms and periodic table topics, Unit test on Atoms & periodic table, Scientific data collection and analysis, as well as scientific writing***

(may be different for some students base on skills and knowledge)

**Presentation**

*How will students show what they know?*

***Write descriptive crime reports, complete evidence folder using scientific method organization, organize the elements of the periodic table in an original way to show they understand the periodic trends and the properties of the families***

*Who is your audience?*

***Community? Have police officers/forensic specialists come in to help students, show parents and community members at exhibition***

(may be different for some students base on skills and knowledge)

**Differentiation:** Needs to be created in collaboration with Inclusion Specialist (for all students) and Job Alike (for honors)

**For all students**

1. **Content** - (No need to retype it here, this should be listed above under basic/advanced Knowledge and Skills)
2. **Product** (No need to retype it here, this should be listed above under Product and Presentation)
3. **Process** – what different modalities will you use

***Scaffolding material, guided notes, graphic organizers, chunk assignments into smaller pieces, lots of small due dates to keep students on track, before or after school help (if needed, make mandatory one day a week)***

4. **Learning Environment** – how will you change the environment in which students learn (grouping, location, dynamics)

***Groups of 4, all have a different role to access all different types of learners and their skills, each team gets a certain space to set up their crime scene, group work in class to work on periodic table and math topics, along with some silent, individual work time***

**Honors Options**

***In order to earn honors credit, students must create a 3 dimensional model of the periodic table that displays 3 different periodic trends to scale. All trends must be shown on one cohesive final product.***