

Lesson Title:	Subject:	Grade(s):
Blender Introduction - Environment (HDRI) Tutorial	Digital Media / Graphic Design (ADST)	8-12
Name:	Date:	Lesson #
		1.4

Rationale:
(lesson context and reasons why lesson matters)
These lessons are intended to provide a basic understanding of the Blender software, enabling students to use these basic understandings to allow them to develop greater skills and 3D modelling in future projects.

Curriculum Connections : https://curriculum.gov.bc.ca
Core Competency
Creative Thinking
Curricular Competency
Identify appropriate tools, technologies, materials, processes, and time needed for production. Construct prototypes, making changes to tools, materials and procedures as needed Identify and assess skills needed for design interests, and develop specific plans to learn or refine them over time.
Content:
Methods and principles of 3D Graphic Design 2D, 3D, Audio, and video digital media editing tools, including paid, freeware, open source, and cloud-based solutions. Tools and techniques for image manipulation

Learning Intentions	Activity	Assessment
Students Will be able to:		
Understand the basics of Blender, identify the tools necessary to use the program and begin understanding how to add materials to their objects / Environments	Students will add in an Environment, followed by adding the following lessons back into their Snowman.	Formative: Teacher will evaluate student progress through walking around and ensuring students are focused and working on activity. Summative: Students will submit their completed UV Mesh Lineup complete with Materials, Shaders and Environment.

Prerequisite Concepts and Skills:
For student success
Basic understanding of Blender and the UI Creation of various mesh tools and the ability to alter them How to add Materials and Shaders, including the mixing within Shader Editor / Nodes

Materials and Resources with References/Sources:	
For Teacher	For Students
Computer Projector Blender (Free Software) Blender Materials / Shaders Instructions Worksheets	Computer Blender (Free Software) Blender Materials / Shaders Instructions Worksheets

Differentiated Instruction (DI):
Accommodations
Students may be able to create shapes or play with the program at their own pace. As this is introductory, much of the Blender program at this stage is exploratory

Organizational/Management Strategies:
Anything special to consider?

It is highly recommended to have a projector in a spot where all students are able to view and see the content easily.

It is strongly suggested that teachers familiarize themselves with Blender prior to teaching any lesson to reduce teacher frustration / confusion.

Teacher should create succinct steps when discussing new programs such as Blender

Concrete plans or instructions should be considered beforehand.

Possible Aboriginal Connections / First Peoples Principles of Learning

http://www.bced.gov.bc.ca/abed/principles_of_learning.pdf

https://curriculum.gov.bc.ca/sites/curriculum.gov.bc.ca/files/pdf/aboriginal_education_bc.pdf

Learning takes patience and time.

Lesson Activities

Teacher Activities	Student Activities	Pacing
Introduction		
<p>Teacher prepares Blender Software and projector to begin class.</p> <p>Once students are settled, take attendance making note of who is not available for this introductory lesson.</p>	<p>Students take their seat and log into their computers.</p> <p>Students will raise hand / provide attendance.</p> <p><i>Teachers may have students complete daily task/activity to settle the class prior to or during attendance.</i></p>	5-10 mins
Body		
<p>Teacher will grab students attention and inform them of what the focus of the day is:</p> <ul style="list-style-type: none"> - Adding an Environment to their UV Mesh Lineup - Continued Work on their snowman <p>Teacher will ask students to open Blender and open their lineup of mesh objects they were working on the previous day.</p>	<p>Students will listen and understand what they're expected to learn for today's lesson.</p>	<5 mins

<p>Teacher will begin discussing and demonstrating the following:</p> <p>Discuss and Demonstrate</p> <p><u>How to Add an Environment</u></p> <p>To Add a Basic Colour</p> <ol style="list-style-type: none"> 1) Simply press the 'World' Icon within the properties Viewpoint 2) Change the colour <p>However, everything is of the colour you changed it to.. We can fix that.</p> <p><u>How to add a more dynamic Environment</u></p> <ol style="list-style-type: none"> 1) Split your screen as demonstrated in last lesson 2) Change the upper view of the secondary split screen to 'World' instead of 'Object' 3) Two nodes will appear. 4) Duplicate Background <ol style="list-style-type: none"> a) Make one Blue b) Make one a .. light gray c) Add Mix Shader d) Connect the backgrounds and you'll have a blue background and the Objects won't be as bad 5) To make it even more dynamic.. <ol style="list-style-type: none"> a) Add → Input → Light Path b) Connect the 'Is Camera Ray to Function of Mix Shader c) May have to switch around the colours of the backgrounds to the mix shader for best results. <p><u>How to add an HDRI Background</u></p> <p>HDRI = High-Dynamic-Range Imaging</p>	<p>Students will work alongside the teacher, asking questions when necessary and asking their peers if they missed out on anything in particular.</p>	<p>40-60 mins</p>
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<p>Similar to adding an image to an object, we will do something the same to our environment.</p> <ol style="list-style-type: none"> 1) Add → Texture → Environment Texture 2) Connect Environment Texture to both Background Nodes 3) Find an image <ol style="list-style-type: none"> a) Suggestion: Poly Haven b) Suggestion: Cape Hill 2k Image 4) Download the image <ol style="list-style-type: none"> a) Open it in the Environment Texture and Voila! It's there! <p><u>How to rotate the Environment</u></p> <ol style="list-style-type: none"> 1) Add → Input → Texture Coordinate 2) Connect Generate to Vector Node of Environment Texture 3) Add → Vector → Mapping <ol style="list-style-type: none"> a) Place 'Mapping' between Connect Generate and Environment Texture b) Noodles should snap into place. 4) Use X,Y,Z functions in 'Rotate' of mapping to move the environment around. <ol style="list-style-type: none"> a) Holding Shift will slow the function down to make it more manageable <p>All students an opportunity to find an image, add it in and play with it the best they can.</p> <p>Once students have completed this entire tutorial, they're to PACK THEIR RESOURCES and save their project and submit it to the teacher for</p>	<p>Students find an image they want to download and use as their environment from Poly Haven</p> <p>Students will save, pack their resources</p>	<p>10 Mins</p> <p>5-10 mins</p>
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<p>complementary grade. Teacher will go around the class to ensure students are packaging resources and submitting them for a complementary mark.</p> <p>Teacher will stop the class after 10 minutes and explain what students are to complete next.</p> <p>Discuss and Demonstrate:</p> <p>Teacher will explain that students are to open their old Snowman file, and begin adding shaders, smoothing down the spheres and beginning to turn their gray snowman into something a bit more lively.</p> <p>It is encouraged that students add an environment to their snowman as well.</p> <p>Teacher will go around the classroom and ensure that students are working on their own snowman, adding in materials, shaders and HDRI's where necessary.</p> <p>Teacher will stop the students near the end of the class to recommend them to PACK THEIR RESOURCES (if necessary) and save their file.</p> <p>File → External Data → Pack Resources</p> <p>File → Save (or Save as!)</p>	<p>and prepare their blender program for submission to be marked.</p> <p>Students will stop and listen to see what the next task is, asking questions if required.</p> <p>Students will open their old snowman and begin adding materials, shaders and environments to their original creation.</p>	<p>5-10 mins</p> <p>30-40 mins</p>
<p>Closure</p>		
<p>Teacher will ask students to log off their computers, push in their chairs and prepare for the next lesson.</p>	<p>Students will log off their computers, and prepare for their next class.</p>	<p><5 mins</p>

Post Lesson Reflections: