Syllabus

Course Name: Envisioning Future Communities with S.T.E.A.M. focus.

Participants: High School and/or Middle School Students

Language of Instruction: English
Number of Participants: Approx 28 per group

Tools and Materials Required:

Course Description:
This STEAM (project based) curriculum engages students in re-designing and inventing community.
Students will use a hands-on, project-based approach, to learn the terminology, basic concepts, as well as planning and design techniques necessary to create unique and final concepts. This scalable curriculum is suitable for middle school – high school students. It has a strong 3d modeling and architectural focus yet it is much more.

Utilizing writing, sculpture, photography, video, and drawing along with Google SketchUp, Maps, and Earth students will create concepts for community design and improvement.

Each student project may contain a variety of creative media including original models of architecture, sculpture, inventions, sound bites, as well as photography, video, and animation. As part of the assignment, students will be blogging about their works in progress. This approach to media making naturally encourages student's engagement in science, engineering, technology, math and language pursuits.

Course Learning Objectives
As design thinking skills are key to human development in these new times; upon successful completion of this course, students will:

- Have an increased awareness of their worlds on multiple levels including:
  - Gained new ways of thinking about space.
  - Increased understanding of their physical worlds.
  - Expanded their awareness of the social and emotional needs of themselves and others.
- Strengthened critical thinking skills.
- Gained proficiency in areas including:
  - Project Planning
  - Diorama a.k.a. model making/prototyping
  - 3-D modeling software
  - Video production
  - Sound production
  - Interview Skills
  - Animation in SketchUp

Essential Questions:

- If I could change something about my community's environment what would it be and why?
- How does doing field research help to generate ideas?
- How does 3D modeling help us to visualize ideas?
- What is the Video Creation process?
- What is the role of planning in a project? Why is it important?

Prerequisites

None required.

Methods of Instruction

Classroom lectures and demonstrations, student's participation, collaborative and solo assignments. Reading and reflective writing.

Weekly Reading and reflective writing questions:

Relevant articles will be assigned for weekly reading to prepare students for upcoming week's work. **(ARTICLES are still in selection process).**

COURSE PROJECTS and GRADE BREAKDOWN

Participation in Class Discussions and Critiques:	10%
Field Research, Interviews and related homework:	10%
Project #1: Proposal and related homework:	15%
Project #2: Diorama and or Floor Plans and related homework:	15%
Project #3: 3D Model and animation and related homework:	20%
Project #4: Final Video Interview and related homework:	20%
Final Presentation:	10%

This Week-by-Week break-down is subject to change.

This uses an 8 week model allowing for approx 5.6 hours of instruction per week. Four classes per week with each class length being approx 1 hour and 40 minutes per class.

WEEK 1:

Days 1 and 2

Introductions and expectations

- Welcome students and introduction
- Review of the projects that class will be doing
- Review class expectations
- Class discussion - "What is community?"
- What does it mean to "Improve Community?"
- Start Community's Research packet

Weekly Reading and reflective writing questions (in Blog if possible).

Days 3 and 4

- Introduction to KidBlog of other Blog Tool.
- Set up Blog and create first Blog entry based on writing prompt.
- Introduction to the Research and Missions.
- Discuss students's initial ideas
- Introduce Proposal Process

Homework: Answer community research questions, using writing, photography and interviews.
Weekly Reading and reflective writing questions (in Blog if possible).

WEEK 2:

Days 1 and 2

- Review Proposal expectations and guidelines
- Introduction to Scale model Diorama and Floor Plan
- Blog about your goals progress

Homework: Work on proposal
Weekly Reading and reflective writing questions (in Blog if possible).

Days 3 and 4
Field Work research AND Proposal due

- Students begin Diorama or floor plan
- Create ToDo List on blog and make progress notes

Homework: Complete Diorama
Weekly Reading and reflective writing questions (in Blog if possible).

WEEK 3:

Days 1 and 2

- Diorama or floor plan due
- Collaboration to finalize all work up to this point

Days 3 and 4

- Introduction to SketchUp measuring and sizing correctly
- Begin work in SketchUp
- Work and collaboration time
- Blog on work progress

Homework: Practice SketchUp
Weekly Reading and reflective writing questions (in Blog if possible).

WEEK 4:

Days 1 and 2

- More instruction in SketchUp move content accurately
- Work and collaboration time
- Blog on work progress

Days 3 and 4

- More instruction in SketchUp textures and image maps
- Work and collaboration time
- Blog on work progress

Homework: Practice SketchUp
Weekly Reading and reflective writing questions (in Blog if possible).

WEEK 5:

Days 1 and 2

- More instruction in SketchUp – working with components
- Work and collaboration time
- Blog on work progress

Days 3 and 4

- More instruction in SketchUp – Creating Animation
- Students begin Animations in SketchUp
- Work and collaboration time
- Blog on work progress

Homework: Practice SketchUp
Weekly Reading and reflective writing questions (in Blog if possible).

WEEK 6:

Days 1 and 2

- Introduction to interview video assignment
- Review examples
- Introduction to video editing and understanding time
- Review interview questions
- Video teams established
- Blog on work progress

Homework: Practice answering and answering Interview questions
Weekly Reading and reflective writing questions (in Blog if possible).

Days 3 and 4

- Discuss Camera angles and shot types
- Basic video editing demonstrated
- Begin creation of Titles for Video
- Begin interview video project using questions provided
- Blog on work progress

Homework: Plan your video using storyboards
Weekly Reading and reflective writing questions (in Blog if possible).

WEEK 7:

Days 1 and 2

- More video editing demonstrated
- Students work on interview videos and add clips from SketchUp animation
- Blog on work progress

Days 3 and 4

- Sound track creation demonstrated
- Students work on and complete video edits
- Blog on work progress

Homework: Weekly Reading and reflective writing questions (in Blog if possible).

WEEK 8:
Days 1 and 2
Student Plan Presentations

- Students Finalize all work
- Students prepare their presentations
- Blog on work progress

Final Critique
Days 3 and 4

- Post privately on YouTube if allowed
- Present final work
- Final Blog post
