

## ***BCLUW - Virtual Reality & 3D Applications***

The Virtual Reality Education Pathfinder (VREP) is a new educational initiative at BCLUW High School that offers students an opportunity to develop and expand their learning across the curriculum by capturing student interest through the use of Virtual Reality and 3D. Students become self-motivated learners and mentors for their peers, choosing to create virtual reality (VR) projects related to their own interests and for educational use within other BCLUW classes.

This program will incorporate Blender, a 3D graphics and animation program that is installed on BCLUW laptops, and may also include other 3D / Virtual Reality software and programs. 3D / Virtual Reality is a growing field of technology, and these programs are capable of a wide variety of advanced applications including creation of models / objects, architectural structures, games, simulated / virtual environments, and animations. The opportunities available to BCLUW students in VREP are limited only by their imagination and dedication to the program (see vrep.org for more information).

In order for a student to engage in the virtual reality program (earn credit in “*Virtual Reality & 3D Applications*”) and be allowed to work in the new virtual reality lab, the student must -

1. Sign up for the class - ***Virtual Reality and 3D Applications***
2. Develop, each semester they are in the class:
  - \* at least 2 educationally-relevant VR/3D applications (examples: models, animations) that can be used by other teachers or yourself (for another classroom project in math, science, industrial technology, etc.) at BCLUW to help teach or illustrate a concept. These may be done in Blender, Maya, or other approved 3D / virtual reality program.

### AND

- \* at least two other VR / 3D projects of the students’ choosing, based upon personal interests, hobbies, “curiosity”, etc.
- (the number of projects (4) each semester is subject to change - either increase or decrease-based upon the complexity and time spent on each project)
3. Keep a learning log (updated at least once/week) of their new VR learning and progress on current project/s. The format for this will be set up in Studywiz.
  4. At least one of your projects each semester should be rendered in real (stereoscopic) 3D for viewing in the virtual reality lab. (there will be training available on this process)
- \* It is expected that students will spend a *minimum* of 4 hours / week working on their VREP projects, and that they will periodically take part in collaborative groups to share their learning and assist others in the VREP program.

**Goals:**

- to complete 3D and/or VR projects that have personal and educational relevance/importance (Number/complexity of projects based on length of the course/time allotted – recommended 2 projects per 9 week session)
- to effectively demonstrate 21<sup>st</sup> century skills, specifically:
  - critical thinking and problem solving
  - collaboration across networks and leading by influence
  - adaptability
  - initiative and entrepreneurship
  - oral and written communication
  - accessing and analyzing information
  - curiosity and imagination
- to learn skills that can be transferable to a growing high-tech industry in Iowa, along with learning more about specific business and industry that utilize virtual reality applications

**Process:**

- The teacher-facilitator of “Virtual Reality & 3D Applications” at BCLUW may have limited technical expertise - their role is to provide equipment, software, periodic training / resources, and contacts that can help students be successful in their independent study projects.
- Student will work with teacher-facilitator to identify a project and provide:
  - Tentative project name.
  - Anticipated subject area(s) involved.
  - Partnering teacher(s) in other subject / content areas at BCLUW (for educational projects)
- Student will identify the key elements of the project, including but not limited to:
  - Audience/intent of use
  - Anticipated resources needed (who/where might they call on for guidance and learning? – includes on-site teachers and students, VREP network teachers and students, and on-line and physical resources).
  - Preliminary schedule and plan for completion, including check point conversations and meetings with teacher-facilitator/s.
  - Plan for sharing beyond the BCLUW VREP group– to others in school, industry, community, extended VREP network, etc.
  - Acquire appropriate signatures approving the plan.
- Final project demonstration / presentation.
- Evaluation and final documentation.
- Student will post completed projects to the VREP consortia database for others to see & learn from (assistance will be provided in this process).

## ***Virtual Reality & 3D Applications - Course Assessment / Grading***

Although a grade in this class is of much less importance than the learning, since this will be on your transcript, it is important that all students adhere to consistent, high standards for progressing on and finishing projects. Just as if you were doing these projects as a job (and maybe someday you'll be working in a related field!), you'll have certain parameters, deadlines, and expectations to communicate and share your results / learning. You start from "nothing" and earn your grade over the semester, based upon a minimum of 4 projects: At least two of the projects must be done using Blender (this is due to its high levels of complexity and potential applications, along with the knowledge that future VREP trainings and meetings with other students will often focus on this program), Your other two projects *may* use other approved 3D / VR applications, such as Maya, Mudbox, or Google Sketchup.

**"Project"** consists of a previously approved project (see "Project Proposal Sheet") that has been submitted to, and approved by, the BCLUW Virtual Reality teacher-facilitator/s. At completion of each project, students will contact and share their project with the BCLUW Virtual Reality class teacher-facilitator/s for approval or return for changes / additions. An "average" project should consist of a minimum of 15 hours of work (research & production). Projects shorter in length / complexity may be combined into one of the four projects (with prior permission).

- At least one "Project Proposal Sheet" must be turned in by the end of the second week of the semester, and at least one completed project must be submitted / shared with the VR teacher-facilitator/s by the end of the quarter.
- All "Project Proposal Sheets" should be submitted for approval at least three weeks prior to the end of the semester.
- All projects must be complete and submitted prior to semester test dates at BCLUW.

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- A
    - \* 4+ Projects (2 personal / 2 educational) complete
    - \* At least two projects rendered in stereoscopic 3D
    - \* Projects shared with audience / at least 2 projects shared with relevant audience "outside the school walls"
    - \* Complete learning log kept of progress on VR projects
  - B
    - \* 4 Projects (2 personal / 2 educational)
    - \* At least one project rendered in stereoscopic 3D
    - \* Projects shared with audience / at least 1 project shared with relevant audience "outside the school walls"
    - \* Mostly complete learning log kept of progress on VR projects
  - C
    - \* 3 Projects
    - \* At least one project rendered in stereoscopic 3D
    - \* Partially complete learning log kept of progress on VR projects
  - D
    - \* 2 Projects
    - \* Partially complete learning log kept of progress on VR projects
  - F
    - Did not meet above (D) requirements