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D.O.M.E. RESOURCES TOOLKIT: STRATEGIC PLAN



DESIGN YOUR OWN MULTIMEDIA LEARNING ENVIRONMENT (D.O.M.E.)
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Introduction

D.O.M.E seeks to use d-i-y portable planetariums as a catalyst for developing STEAM and digital competencies in students of all ages.

WP3 will enable teachers and students to create their own planetarium presentations, by introducing them to the tools and practices used by the planetarium community. The initial focus will be on astronomy storytelling, linked to their curriculum. Schools and students may extend this to different subject areas in Year 2.

A3.2 Resources and Planetarium Tools

Criteria: at least one tool will be free of charge and universal to all common computer platforms.

- Preferred software options are [Stellarium](#) and [Celestia](#).
- [World Wide Telescope](#) is Windows only.
- [Nightshade Legacy](#) and [Stratoscript](#) language can be used for writing coded shows.

Advanced users will be supported with sample scripts and instructions on how to make edits and changes. A minimum of 3 templates with code for 'shows' will be produced.

Quickstart guides for the specific software will be prepared, with references for more detailed how-to guides, video tutorials, and other support elements.

Digital resources will be divided into categories:

- planetarium software (Stellarium & Celestia)
- ~~images and movies databases~~
- planetarium show public repositories (<https://www.fddb.org/>)
- sound and music libraries
- video and audio editing software (Blender, Audacity)
- image archives from space agencies

To extend DOME beyond the traditional astronomy focus, Blender will be introduced.

[How to Set Up Planetarium or Fisheye Rendering in Blender](#)

A3.3 Presentation Guidelines Preparation

Script writing and storytelling / storyboarding as required in the unique DOME environment.

In developing presentations for the full-dome, these results encourage the use of interactive narration that supports illustrations and immersive experiences. Perhaps

the most surprising result is that student learning improved when characters discussed the content with each other.

Our results show that subjects taught with more than one modality (hearing, seeing, hearing a discussion of the subject by the characters on the show, and experiencing using fulldome animations) are more effectively learned than using one modality alone, and that discussion and experience are more effective than just hearing or seeing.

[Learning in an immersive digital theater C. Sumners, P. Reiff, W. Weber]

Camera motions such as pans and tracks are slowed down in fulldome live presentations and films, because faster movements can otherwise lead to motion sickness in viewers [(Wyatt, 2005)]

[Jay Lamm of Irene W. Pennington Planetarium at Louisiana Art and Science Museum]

Flash, sudden brightness changes - Forget about them! The dome is too big to change the environment quickly and not make the viewers dizzy.

[Artur Wolff and Ian Moffett [Blender for planetarium shows](#)]

Guide to developing a planetarium show: (to be edited from this guide)

<https://penningtonplanetarium.wordpress.com/2019/09/25/lets-make-a-planetarium-show-part-1-take-it-from-the-top/>

<https://penningtonplanetarium.wordpress.com/2019/09/26/lets-make-a-planetarium-show-part-2-the-voice/>

<https://penningtonplanetarium.wordpress.com/2019/09/27/lets-make-a-planetarium-show-part-3-digital-sky-animation/>

<https://penningtonplanetarium.wordpress.com/2019/09/30/lets-make-a-planetarium-show-part-4-editing-audio-and-music/>

<https://penningtonplanetarium.wordpress.com/2019/10/01/lets-make-a-planetarium-show-part-5-animation-and-rendering/>

<https://penningtonplanetarium.wordpress.com/2019/10/02/lets-make-a-planetarium-show-part-6-fulldome-photography/>

<https://penningtonplanetarium.wordpress.com/2019/10/03/lets-make-a-planetarium-show-part-7-after-effects/>

<https://penningtonplanetarium.wordpress.com/2019/10/04/lets-make-a-planetarium-show-part-8-slicing/>

<https://penningtonplanetarium.wordpress.com/2019/10/07/lets-make-a-planetarium-show-part-9-surround-sound-fx-and-music/>

<https://penningtonplanetarium.wordpress.com/2019/10/08/lets-make-a-planetarium-show-part-10-end-result-and-live-version/>

Guide to Storyboarding

References

See [Immersive Planetarium Visualizations For Teaching Solar System Moon Concepts To Undergraduates](#) Ka Chun Yu, Denver Museum of Nature & Science, USA, Kamran Sahami, Metropolitan State University of Denver, USA, Grant Denn, Metropolitan State University of Denver, USA, Victoria Sahami, Metropolitan State University of Denver, USA, Larry C. Sessions Metropolitan State University of Denver, USA.