



STEAM Challenge Digital Storytelling Unit

Home Makeover

Designed for Middle and High School Students

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	Thinking, Presentational Skills
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Introduction

This Digital Story Telling Challenge will take two to four weeks to complete. This Challenge targets key Human Life Skills – creativity, collaboration, critical thinking, digital literacy, and presentational skills – in equal measure with the curricular content. Delivering on all those learning goals requires student immersion and time. The results, as based on our research, are a high level of student engagement, deep learning, and 100% teacher endorsement.

The following Challenge:

- Should be completed by collaborative teams of two to four students but can be completed independently, if desired.
- Is aligned to nationally recognized Curricular Standards.
- Contains an Evaluation Rubric that allows the teacher to clearly score and appraise the students' work.
- Is designed to be integrated into the classroom in alignment with existing curricula.
- Can be assigned as an extra credit project to teams of students that you think would benefit from this kind of immersive, deep learning experience. Additionally, will work well in informal educational settings.
- Should follow the rules of Digital Citizenship in their proper usage and/or citation of images, music and text taken from other sources. See the Digital Rules area in the free Media Resources section of the Meridian Stories site for guidance.

The **Media Resources** section also contains many other **free support materials** from short videos featuring professionals in the field – Artists and Innovators– to short written documents that cover everything from storyboarding to creative brainstorming, interviewing techniques to game design.

While it is helpful to have a Technology Integrator involved, they are not usually necessary: the students already know how to produce the media. ***The teacher's primary function in these Challenges is to guide the students as they engage with the***

content. You don't need to know editing, sound design, shooting or storyboarding: you just need to know your content area.

At the end of the Challenge, it is often fun and useful to have a screening of all the media productions – they are all designed to run under 4 minutes each. Students can vote for their favorite videos that can then be screened in a larger assembly-like setting for the whole grade to see. Or this work can be presented as part of a student showcase for parents and friends. Presentational Skills is another Human Life Skill that this project enables.

Our research indicates this to be a really useful exercise for two additional reasons:

1. Students actually learn from their peers' presentations – it is useful to hear a perspective that is not just the teacher's; and
2. The public setting – painful as it is for some students – provides them with an opportunity to 'own' their work and to be more accountable.

Finally, if you are interested to learn more about the community of schools who annually participate in the [**Meridian Stories Competitions**](#) – a community that is characterized by a friendly competitive spirit; feedback from Mentors on each submission; and the rewarding of digital badges in content, storytelling and digital literacy – please return to the Competitions section of the website or inquire at info@meridianstories.com.

Let's get started.

The Challenge

You sit in the corner office, your feet resting lazily on your desk while you stare out the window of a high-rise. It took you five long years to build up your reputation as the most detail-oriented architect in all of the world. Stacks upon stacks of client requests sit upon your desk. Which project to tackle next? You've whittled it down to the three most interesting requests, each of which is for a partial renovation to an existing building. Your options are as follows (see Appendix A for exterior shots and floor plans):

1. The Bogulsons—Style: Adobe
Additions: Pool, Pool house, Outdoor Kitchen
The Bogulsons have long lived in their one-story adobe house in arid

Southern California, but they are now looking to upgrade. You see, Mr. Bogulson has just secured a job as an agent for major league athletes and he needs an up-scale place to meet with prospective clients so he can impress them and secure their business. He has decided to have a lavish outdoor pool area added to his home, complete with an outdoor kitchen for preparing food for clients and a pool house for sunset meetings. Mr. Bogulson's business depends on your ability to make this renovation as picturesque as possible.

2. The Sherwoods—Style: Medieval

Additions: Tower, Moat, Bridge

John and Elizabeth Sherwood are the king and queen (and co-owners) of the Pondera County Renaissance Fair. They have had years of success, but sadly the renaissance fair business just isn't what it used to be. Their visitor count has been steadily declining, and they've decided to renovate the fair's main castle to rekindle interest. They are asking for a full moat with bridge and an additional tower to be added to their existing castle keep. If you can construct a castle truly fitting medieval standards than maybe all hope will not be lost for John and Elizabeth's pride and joy.

3. The Rahmans—Style: Waterfront Bungalow

Additions: Overwater bungalow, boat house, ????

Sam and Max Rahman have lived in the same oceanside home in Hawaii for their entire wedded life. Now, as they look to retire, they plan to construct an overwater bungalow by their shore to rent out periodically to fund their retirement. The bungalow will have a boathouse and ...something architecturally unique that will draw tourists' attention. What that final design flare is, ...is up to you.

Pick one of these clients and help them realize their vision. First, you must replicate what they already have in your design software of choice. Then, conduct research and design renovations that will knock their socks off. Finish by making a convincing video tour of your new and improved construction—after all, what is your work worth if you can't sell your client on the fact that you did a great job?

Deliverables Include:

- Renovated Building Tour
- Style Guide (at teacher's discretion)
- Schematics (at teacher's discretion)
- Screen Shot Assemblage (at teacher's discretion)

- Shooting Script (at teacher's discretion)

Process

Below is a suggested breakdown for the students' work.

During Phase I student teams will:

- Pick which job to accept.
- Research the style of architecture that your job is asking you to replicate.
 - Many architectural styles have morphed and changed over time. You should aim to stay as close as possible to the architectural style in the job photo.
- Gather ideas of how you may design your renovation.
 - The internet can be a good tool for this. Look at what buildings other architects have built that match the job you're seeking to complete and save the photos so you can have inspiration when designing.
 - Another good resource is your own experience. Perhaps your own town has an example of the architectural style with which you are working, or you've gone on a trip to somewhere and seen the architectural style you picked. Save photos of these as well.
 - Make sure you document your brainstorming and research throughout Phase I (and Phase II), either via video or notetaking (preferably both). Having documentation of the entire process will be handy when you make your final video, as it will help communicate not just *what* decisions you made, but *why* you made them and *how* you made them.
 - **Teacher's Option: Style Guide** – The teacher may require teams to hand in a collection of images or other materials gathered from the internet or real life that reflects the architectural style that the team will eventually be modeling. These resources can serve both as inspiration when designing the buildings and as proof that you stuck to the style.
- Draft the renovations
 - Any good designer knows it's important to start in 2D before you move to 3D. Start drafting schematics of your proposed renovations on paper. Your starting point will be the dimensioned floorplans that you are provided. Pay attention to the size of different rooms and be sure to include measurements on the schematics you draw up.

- You can begin by modeling your schematics after the provided floorplans, but don't be afraid to get into more detail. Be specific about architectural embellishments, like crenellations on a castle tower, because they'll be important later, when you're actually designing the buildings.
- Your schematics should have more angles than just top-down. Draft the sides of the buildings as well.
- Focus most of your intentions on exteriors, as they are the easiest way of emulating a given architectural style
 - ***Teacher's Option: Schematics*** – The teacher may require students to hand in schematics of their proposed renovations. These are 2D design documents that show what the building will eventually look like from a variety of angles, especially the dimensions.

During Phase II student teams will:

- Construct the model of the existing building
 - For this step, Google SketchUp is the recommended tool. It is a free 3D modeling tool that runs in the browser and is free to use if you're school uses Google's *G Suite for Education* (Google Docs, Drive, Classroom, etc.). <https://www.sketchup.com/products/sketchup-for-schools>
 - Focus on the exterior. Exteriors are the primary purpose of this project and will help you engage with the material better than interiors.
 - Be sure to start from the provided floor plan files. They are dimensioned to match the images provided, which means they will line up with the schematics you drafted of your renovations. You can import them to SketchUp by uploading them to your Google Drive and then clicking File > Open in SketchUp.
 - Do not feel pressured to exactly match the photos of the existing buildings. The thoughtfulness of the renovations and the ability to match the existing style is more important.
- Add your renovations to the model
 - Be sure to save a copy of just the original building, so you can compare the original with the renovation in your video tour.
 - Take liberties with how you add the renovation. For instance, The Bogulson's pool can go on any side of the house, and the Sherwood's tower can be added to the existing building or can be a freestanding watchtower. The important thing is being able to justify your design and

stick to the existing style. You are not just the practical builder: you are the designer. So design!

- Prepare the building for presentation.
 - If you haven't already, add textures to your model in SketchUp to really complete the appearance.
 - **Teacher's Option: Screen Shot Assemblage** – The teacher may require students to hand in printed out images of their renovations. Think of this as if you are taking promotional shots of your renovations. Find the angle they look best from and take screenshots. These still shots may come in handy for your video later.
 - **3D Printing Option** - Additionally, if you have the resources, and depending on how your renovation was designed, it could be quite easy to 3D print it. You can use SketchUp's, 'solid inspector' to see if it is valid for 3D-printing. If it is, go to "export > STL" in SketchUp and import that STL file into your 3D printer software of choice. Look online for more guidance.

During Phase III student teams will:

- Brainstorm ideas for how you present your renovation to the client:
 - You've put in all this hard work to make a building you think is awesome, but now you have to convince the client of the same thing! You want them to be happy they chose you and to come back again in the future, so really sell them on it.
 - For the first point, think back to when you were brainstorming ideas for the design. Why did you go with the design you did? What makes your building truly awesome and the perfect fit for what the client asked for?
 - For the second point, feel free to include images of other buildings you found in the style that you used as inspiration. Citing your sources like this lends credibility to your creation and shows you put thought into the design.
 - How will you present the renovation to the client? SketchUp offers a tool that allows you to walk-through buildings you've made, which could

allow you to make a digital walk-through of the house. But you should also augment your final product by interspersing footage of the architects talking to the camera about the design process and why the final product is desirable.

- Think of the various products you've created throughout the challenge: your Style Guide, your schematics, the original building without renovations. Each of these could be included in your final video to make it more engaging.
- Draft the video script.
- Finalize script
 - **Teacher's Option: Shooting Script**—Teachers may require that teams hand in their shooting script.
- Pre-produce the video:
 - Gather all materials and resources you've created that you want to integrate into your video;
 - Find any additional graphics, video, or sound that you require;
 - Create costumes, props and other set pieces, as needed;
 - Prepare the logistics for the actual shooting of the video; and
 - Rehearse the scenes that will comprise the video.

During Phase IV student teams will:

- Shoot the video.
- Record the voice-over or narration, as necessary.
- Edit the video, adding stills and graphics as desired.
- Post-produce the video, adding music and sound effects as desired.

Meridian Support Resources

Meridian Stories provides two forms of support for the student teams:

1. Meridian Innovators and Artists – This is a series of three to four-minute videos featuring artists and innovative professionals who offer important advice, specifically for Meridian Stories, in the areas of creativity and production.
2. Media Resource Collection – These are short documents that offer student teams key tips in the areas of creativity, production, game design and digital citizenry.

Recommended review, as a team, for this Challenge include:	
Meridian Innovators and Artists	Media Resource Collection
<i>The Importance of Character in Storytelling</i> – Scott Nash	“Creating Storyboards, Framing a Shot”
<i>Multimedia in Theatre</i> – Roger Bechtel	“Creative Brainstorming Techniques”
<i>Acting</i> – Abbie Killeen	“Rendering and Animation Programs”
<i>Nonfiction</i> – Margaret Heffernan	“Creating a Commercial”

Evaluation Rubric – *Home Makeover*

CONTENT COMMAND	
Criteria	1-10
Architectural Style	The renovation clearly emulates the style of the existing building, with specific architectural features taken from the relevant style
Technical Standards	The 3D model and schematics (if shown) match the dimensions and designs of the originally provided floorplans.
Job Specifications	The renovation meets the job specifications in a purposeful way with an eye toward both form and function
STORYTELLING COMMAND	
Criteria	1-10
Video Tour	The video tour provides viewers with a compelling and persuasive story about the new proposed renovations
Integration of Design Materials and Planning	The video integrates materials and resources created during planning and construction to enhance the narrative's complexity
MEDIA COMMAND	
Criteria	1-10

Mixed Visual Media	The use of video, stills, graphics and/or text was engaging, visually interesting and well matched to the content within the pitch
Sound Design	The mix of music and sound greatly enhanced our engagement with the video tour
HUMAN SKILLS COMMAND	
Criteria	1-10
Collaborative Thinking	The group demonstrated flexibility in making compromises and valued the contributions of each group member
Creativity and Innovation	The group brainstormed many inventive ideas and was able to evaluate, refine and implement them effectively
Initiative and Self-Direction	The group set attainable goals, worked independently and managed their time effectively, demonstrating a disciplined commitment to the project

Essential Questions

1. How can one propose solutions to STEAM design projects that require more than just technical knowledge to complete?
2. How can one construct a product to meet specific project specifications?
3. How can one draft schematics as prototypes of future work to ensure the solution is planned before it is implemented?
4. How does one frame the work they've done to convince an audience that it is a satisfactory finished product?
5. How has immersion in the creation of original content and the production of digital media—exercising one's creativity, critical thinking and digital literacy skills—deepened the overall educational experience?
6. How has working on a team—practicing one's collaborative skills—changed the learning experience?

Student Proficiencies

1. The student will learn that many projects require two sets of knowledge: technical knowledge for the tools needed to solve the problem, and content knowledge specific to the problem that may require additional research.
2. The student will learn to carefully consider what is being asked of them in a project specification and how to identify the best and most efficient solution that fits within the bounds of the task.
3. The student will learn that drafting schematics before the main work has begun ensures that all team members are on the same page and that the project does not grow out of proportion.
4. The student will learn to document the purpose behind each step of the design process, so they can accurately and effectively report out on why their solution was the best one for the problem, backing up their claims with evidence.
5. The student will utilize key 21st century skills, with a focus on creativity, critical thinking and digital literacy, in their process of translating STEAM content into a new narrative format.
6. The student will have an increased awareness of the challenges and rewards of team collaboration. Collaboration – the ability to work with others - is considered one of the most important 21st century skills to develop in students as they prepare for life after secondary school.

Curricular Correlations

The **Home Makeover** Challenge addresses a range of curricular objectives that have been articulated by two nationally recognized sources:

1. The **Next Generation Science Standards**;
2. The **Common Core Curricular Standards – Mathematics**; and
3. The **Common Core Curricular Standards – English Language Arts & History/Social Studies**.

Below please find the standards that are being addressed, either wholly or in part.

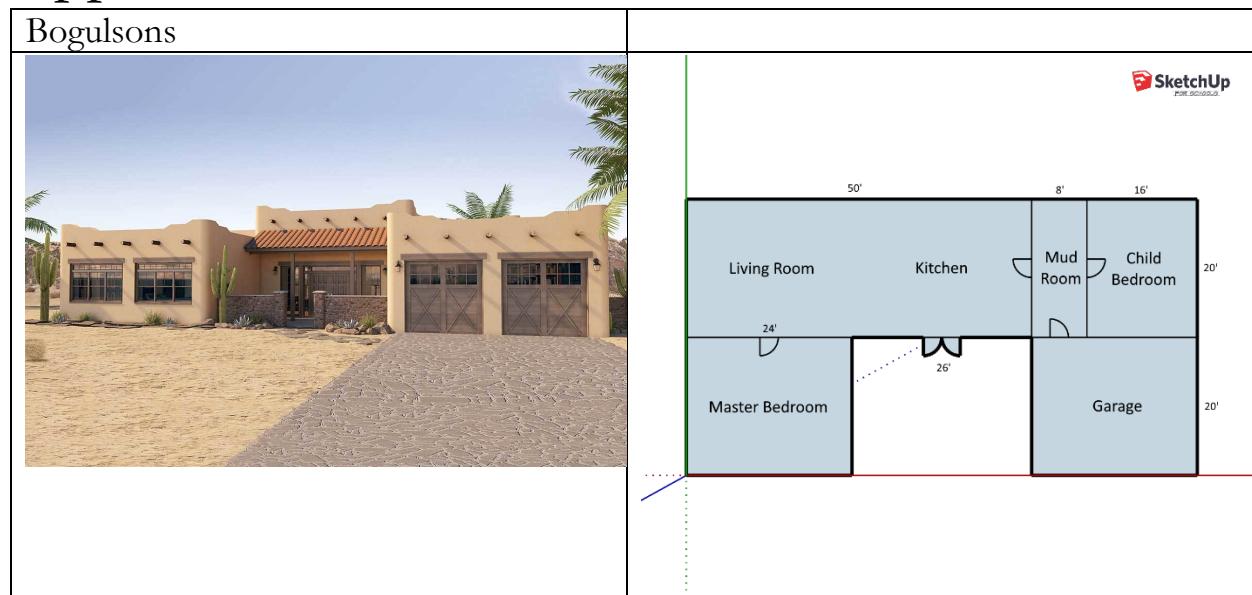
Next Generation Science Standards (NGSS)	
MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles

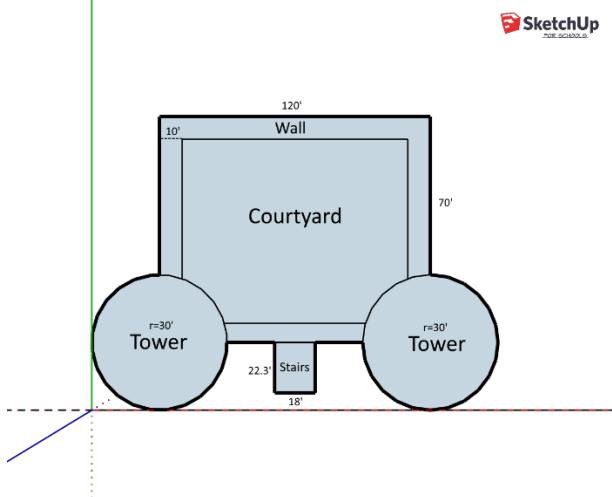
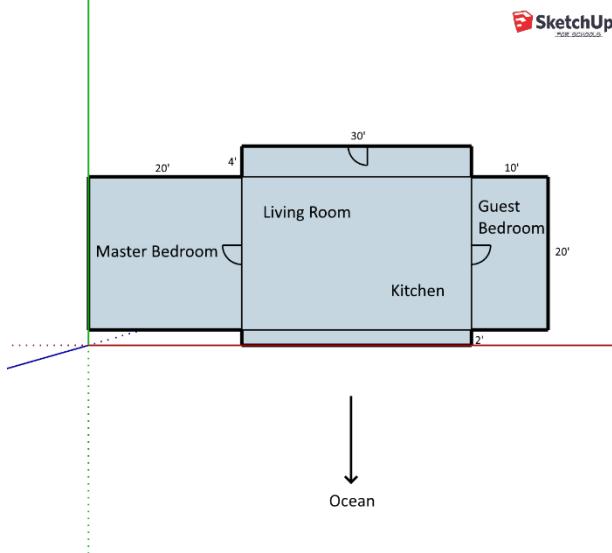
	and potential impacts on people and the natural environment that may limit possible solutions.
MS-ETS1-2	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

Common Core – English Language Arts & History/Social Studies	
W2 WRITING Text Types and Purposes	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W3 WRITING Text Types and Purposes	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
W4 WRITING Production and Distribution of Writing	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

SL1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 8–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
RH9	Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.

Appendix A – Floor Plans



<p>Sherwoods</p> 	
<p>Rahmans</p> 	<p>Note: This job is slightly different. The overwater bungalow you construct will have a distinct style you will have to stick to like the other jobs, but it will be a separate style from the existing building.</p>
	 <p>Ocean</p>