



Engineers of the Future Virtual Program Rundown Lesson Plan

Lessons	Mentor	Topic	Curriculum	Project	Science Standards	Run Time
Lesson 1 - Welcome Message	Scott Smith, CEO Valley Metro	Welcome message	Mr. Smith provides a warm welcome to our students taking part in the Engineers of the Future Virtual Program.	No project for this lesson – No Curriculum.	NA	1:30 minutes
Lesson 2 - Guest Lecture	Tony Santana, PE-Valley Metro Project Manager	Lecture	Tony shares his personal story about growing up in Phoenix, and becoming a successful engineer with Valley Metro, to inspire others to follow the same path.	No project for this lesson – No Curriculum.	NA	8 minutes
Lesson 3 – Engineer-Mentor	Janet Yeow, Lead Designer AECOM	Critical Thinking	Ms. Yeow provides a lesson about critical thinking, and how this skill helps with learning and a STEM career.	Balloon Car	Motion Energy, Kinetic Energy, Potential Energy	15 minutes

Lesson 4 – Engineer-Mentor	Joseph Davis, Engineer Jacobs Engineering	Communication	Mr. Davis explains what communication is, and the benefits of it to share ideas, opinions, and facts with an audience, to accomplish goals and work as a team.	Marshmallow Slingshot	Energy, Matter, Sum of Forces, Motion	15 minutes
Lesson 5 – Virtual Field Trip	Tour of Valley Metro Operations & Maintenance Center Expansion & Operations Control Center	STEM careers	Students get a behind the scenes look at expanding maintenance buildings, adding five new storage tracks, and adding new service and cleaning facilities for Valley Metro Light Rail and Streetcars.	Virtual Field Trip	All facets of STEM	27 minutes
Lesson 6 – Engineer-Mentor	Scott Tollefson, Sr. Traction Power Engineer at PGH Wong Engineering, Inc.	Workplace Safety & Engineering Scale	Mr. Tollefson explains the importance of workplace safety and how it reduces injuries and increases productivity. He also discusses engineering scale and tools used to for creating transportation projects.	Building Bridge Bonanza	Material Properties, Strength, Weight, Stability and Change	20 minutes
Lesson 7 – Student-Mentor	Nicki Langley, ASU Student	Importance of College	Ms. Langley discusses why earning a college degree is important for a student's future. It is a great way to study STEM to open doors to excellent careers such as engineers, statisticians,	Building The Best Bridge	Gravitational Forces, Cause and Effect, Scale, Proportion, and Mass	12 minutes

			architects, computer programmers, or scientists.			
Lesson 8 – GCU Student Guest Lecture	Nicole Wan & Alyssa Shuman GCU Engineering Students	Guest Lecture	GCU engineering students Nicole Wan & Alyssa Shuman, discuss engineering as a college degree to inspire young girls to pursue the field as a career.	No project for this lesson	STEM	15 minutes
Lesson 9 – Student Social Media Posts	Engineers of the Future Students	Kids show off their best posts	This is a fun exercise to allow the students to post pictures and videos on their social media platforms to put together their project builds.	No project for this lesson	STEM Learning	3 minutes
Lesson 10 – Temple Streetcar Project	Tour of the Tempe Streetcar Project Construction Project	STEM Careers	Students get a behind the scenes tour of the Tempe Streetcar Project that is connect several areas around ASU and beyond.	Virtual Field Trip	All facets of STEM	20 minutes
Lesson 11 – Engineer-Mentor	Karl Witbeck, Sr. Systems Engineering Manager, at PGH Wong Engineering, Inc.	What is an engineer	Mr. Witbeck will explain how engineers create and design many important things in our lives. Stuff we use every day. Things like the light rail project here in Phoenix, and big buildings.	Circus balancing act	Physics, balance, and mass	15 minutes

Lesson 12 – Farewell Address	Kyle Strickland, Director of Project Delivery, Phoenix Project Manager PGH Wong	Goodbye Message Thanking Students	A wrap-up message of congratulations and a job well-done for students. took part in the	No project for lesson	STEM recap	1:30 minutes
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