2019 Dream Catchers Science Program

April 5, 2019 – San Juan College, Farmington

A hands-on science and engineering program designed for American Indian students in grades 6 through 12 who are interested in science, technology, engineering and math. There are no costs to attend the program and parents are invited to attend workshops with their student(s).

Project Management

Just imagine… It’s a blissful sunny day. You and your friends are hanging out under a shaded tree. Text messages, music, and selfies are all being shared with one another. Your giggles and smiles fill the crisp air. Without the advent of smartphones or notepads, this would not be possible. Have you ever wondered how this is really possible? Acquiring information is easy, right? Touch a button, swipe a screen but what goes into making a smartphone or notepad?

Believe it or not, each of these concepts all started with what is called project management. It can be applied to virtually everything we do or create. Whether it’s building something, organizing, planning, or thinking about college, project management provides us with tools that help us meet our goals. In this class, you will apply the fundamental concepts of project management to either plan a family vacation or an event, your first or second job, find an apartment or a car, or decide which college to attend.

Intro to Virtual and Cloud Computing

We will walk through the different iterations of computing from physical to virtual to cloud computing. We will describe how the physical hardware creates virtual computing to then create cloud computing. We will include hands on exercises. If time allows, we will do a high-level overview of how Netflix works.

Fuel Cell Cars

We will study the physical properties of light and perform experiments to demonstrate these properties. We will discuss its application to solar power. Next, we will examine hydrogen fuel cells, which can be used for transportation and reduce the usage of fossil fuels. We will assemble a fuel cell car kit, and, through a series of experiments that the students perform, we will power it with traditional batteries, hydrogen fuel cells, and directly with solar power.

Chemical Engineering

Chemistry is everywhere, and you encounter it on a daily basis whether you realize it or not. In this class we will go through some chemical engineering basics, looking at differences between chemical and physical changes, and use that knowledge to harness the power of chemistry to crumble metal, blow up balloons, and more. This class will end with a competition using what has been learned.