

STEAM: Science, Technology, Engineering, Art, and Math.

Science: Students use the scientific method to explore inquiry in life science, physical science, Earth science, and the human body to learn about God's creations and the scientific laws that humans use to define God's creation.

Technology: Students make use of technology as a tool in learning. With iPads, iMacs, and devices like: Makeymakeys, physical programming boards (code bug), electronic kits (Snap Circuits and Little Bits), and The Pocket Lab. Students are encouraged to explore and support the hands on learning they are engaged in.

Engineering: While science asks "What is the problem?" engineering responds by asking "How can we solve the problem?" We are consistently going back and forth between what is the problem and how can we solve it.

Arts: God make a beautiful work of art in His creation and we follow His footsteps as we learn about Him and what He's called us to do.

Math: Math is a foundational to God's creation and all we are learning.

The Maker's Lab:

We introduced The Maker's Lab, our cozy makerspace, in the 2015-16 school year at SCS. It is a place where we design, build, fail, and learn. It is equipped with electronic parts, glue guns, cardboard, fastening devices, bendable/shapable devices, string/rope, foil, basically anything you'd find in your recycle container and it's innovatively used by 115 students who repurpose it to create things! We allow children to use creativity and innovation, technology and hands-on learning, to address real world problems. It is available to all classrooms and teachers and Mrs. Kraver supports those teachers and the integration of STEAM and Maker concepts into the SCS curriculum and PBL approach.

Computer Science

At SCS we put minimal emphasis on teaching computing. We put heavy emphasis on the principles of computer science. While we don't believe that every student will want to be a programmer or even work in the technology field - technology is finding it's way into every field. It has been said that computer science is the new literacy of the 21st century.

We teach even the youngest students about sequences, programs, algorithms, pattern recognition, abstraction, and optimization. While interlacing programming concepts like: loops, conditional statements, and algorithms; we pose challenging questions and encourage innovation and creativity to address and solve problems. Additionally, computer science addresses logic and math in a way that children are excited about learning.

As educational stewards of these children, we believe it is our duty to work in tandem with parents to encourage digital citizenship, safe searches, and responsible screen time practices in all that we do. We do not believe that technology and screen time are a place to set a child down and walk away. The internet is an intimidating beast for adults, let alone children. Like it or not, it exists in our world and we aim to address supporting the use of it, responsibly, with children.

STEAM & Project Based Learning



**Competence
Compassion
Creativity
Collaboration**

since 1979

*A Ministry
of*



Our children are growing up in a world where computer processing speeds double every 2 years, where they will likely travel in self-driving cars, where many household items will gain membership to the internet of things. They will be challenged to not only understand this technology, but to also harness it's vast potential to imagine and create without their imagination being a limiting factor.....so.....

What if a tribe member, in the remote jungles of Africa, could design, model, and 3D print a prosthetic arm for a fellow villager, who simply doesn't have access to a hospital? What if a computer could receive human brain waves as input and allow a paraplegic man, just by having him *think* about kicking a ball ... get up and actually kick a soccer ball? ... Welcome to such advancements. These things have already been done. I dare you to try to imagine what's going to happen over the next 100 years, over the course of the lives of our children.

Sunnyvale Christian School is preparing children to live in this world, but not of this world. With a project based learning approach, we incorporate the 4 C's of learning: Competence, Compassion, Creativity, and Collaboration to build an authentic learning environment for our students. We integrate STEAM (Science, Technology, Engineering, The Arts, & Math) concepts into our projects. We utilize design thinking as we work in our Maker's Lab to create and build solutions to the authentic learning inquiries we discover with the students.

What is project based learning?

PBL is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an engaging and complex question, problem, or challenge.

In **Gold Standard PBL**, Essential Project Design Elements include:

- **Key Knowledge, Understanding, and Success Skills** - The project is focused on student learning goals, including standards-based content and skills such as critical thinking/problem solving, collaboration, and self-management.
- **Challenging Problem or Question** - The project is framed by a meaningful problem to solve or a question to answer, at the appropriate level of challenge.
- **Sustained Inquiry** - Students engage in a rigorous, extended process of asking questions, finding resources, and applying information.
- **Authenticity** - The project features real-world context, tasks and tools, quality standards, or impact – or speaks to students' personal concerns, interests, and issues in their lives.
- **Student Voice & Choice** - Students make some decisions about the project, including how they work and what they create.
- **Reflection** - Students and teachers reflect on learning, the effectiveness of their inquiry and project activities, the quality of student work, obstacles and how to overcome them.
- **Critique & Revision** - Students give, receive, and use feedback to improve their process and products.
- **Public Product** - Students make their project work public by explaining, displaying and/or presenting it to people beyond the classroom.

Information taken from The Buck Institute of Learning (bie.org). Sunnyvale Christian School teachers are trained in the Gold Standard of project based learning provided by T

At SCS we strive to incorporate the 4 C's:

- **Competency** - Problem solving where students are encouraged to dive deep into concepts with student led inquiry and critical thinking.
- **Compassion** - Developing Godly character by practicing empathy, love and serving others.
- **Creativity** - Created in His image, creativity is at the core of innovation and invention.
- **Collaboration** - Working together to refine social and emotional skills while accomplishing the common goal.

The importance of Competency: The link between competency and education is an obvious one. The point of education is to provide wings to students to enable them to one day stand on their own, in a successful manner. We encourage critical thinking with student led inquiry, while not immediately providing answers - encouraging students to critically think and critically ask questions as they are learning. We encourage a culture where it's safe to fail and use the lessons in failure as a way to spring board into a more accurate solution. All the while refining the critical thinking process.

The importance of Compassion: God calls us to "Love your neighbor as yourself" (taken from Matthew 22: 34-40). While focusing on real world problem solving, using STEAM principles, we are able to engage students on ministry and missions work both locally and in third world countries, encouraging students that their academic focus and problem solving can be put to immediate use by loving and serving their community and the world.

The importance of Creativity: God is the creator of all things. We are created in His image. As students ask big questions, we encourage innovation and invention to address inquiry. We call upon science, technology, design, and math to create solutions to these authentic questions.

The importance of Collaboration: We are a part of the church body and more importantly we live to love and serve others. Working in collaboration allows us to work on the inherent issues we face in our sin nature to put others first. Buck Institute.