Engaging Kids and Community Through Project-Based STEM

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ROVE Student Group
Disclaimer

I love to see what students are able to do with unique opportunities. Pictures tell a story beyond words. Some pictures may seem random. If they generate more questions, please connect with us! We love sharing our experiences with others in the learning community.
Session Goals

Learn some ideas to help start STEM programming with limited resources
Learn ways to connect with established programs
Explore how to connect with your community
Explore connections with local businesses
Network and share ideas with fellow educators
Discover some new cool things to do
What got you hooked on STEM?

For Me: Legos, Knex, RC Cars, tractors, bikes, sewing, cooking, crocheting, whatever I could dabble in (I’m still that way)

Our students are information junkies. (Even though not all of it is true)

Kids like doing things they feel not everyone else is doing

Big picture: Many career opportunities in STEM fields with continued job vacancies. STEM skills go beyond STEM
How Do I Start?

Organic Conversations- Talk to students and see what they are interested in

Gain permission from appropriate entities

Start small

We sort of started as a fitness club
Convince People You Aren’t Playing

First look people see toys

We struggled with initial school and community by in

Highlight curriculum and STEM related topics in publications

Show students in action at events

It might take some time depending on what you choose to start with
They Aren’t Just Toy Cars

Complex suspension geometry
Pulse width modulation
Current and voltage
Aerodynamics
Autonomous capabilities
Multi tiered diagnostics and repair
Weight distribution
Friction studies and surface analysis
Find high interest areas in your community

Talk to parents and students to see what area of STEM has the highest interest in the area.

Are there any clubs or classes you can gather information from?

Do you have any supporters or parents in the wings that can help with their expertise or interest areas?
So Now You Have a Program Started

Schedule as far in advance as possible

Keep your stakeholders informed about what is going on

Find some friends or students with graphics talent

Always look for new helpers. (Responsible students can be helpers too)
Connecting With Community

Get out into the community

Support other groups

Use social media

Local news outlets are always looking for stories
Social Media and Online Presence

Website- we are going back to it for some centralized information distribution.

Facebook- “for old people”

Instagram- still pretty cool, and can send to Facebook

Twitter- limited use in our area

Tik Tok- We tried it. The analysis of viewer trends and capturing audience intriguing.
Social Media and Online Presence Continued
Create an Identity

Create a catchy or unique name

Logos help-  http://www.10alogo.com/

Mascots are fun too.
How Am I Going to Pay for All This?

Sometimes it helps to just ask

Work some fees into the pay structure

Do some make it - take it activities

Host an event

Make fundraising unique

Take advantage of free opportunities

Grants
Pull on Some Loyalty Heartstrings

People love supporting things they are loyal to.

Local School District

Colleges

Favorite local businesses
Connect to Established Learning Communities

Don’t reinvent the wheel if you don’t have to

Local clubs or interest groups

Larger established educational programs- Square One Education Network

Reese Public Schools
Go Underwater

Square One Education Network Underwater Innovative Vehicle Design Challenge

Underwater remote operated vehicles made from PVC pipe and simple circuitry.

Low Cost

Kids love the unique challenge and approachable electronics

Student driven project

Ambassador component
Presentation Skills
Do Something Fun on a Small Scale

Square One Education Network Mini Innovative Vehicle Design

Based on remote control vehicle platform

Affordable price point and grant funding available yearly

High speed, agility, and sensor based challenges

Visit unique facility at local college for competition

Ambassador component
Do Something Fun on a Small Scale

VEX kit classes- Make it, take it

Drone Coding- Tello

Smaller scale RC vehicles- Associated, Losi, LC Racing

2d design with vinyl- stickers and shirts

3d design with printer and hot glue gun

Bring students to technical things around school
Do Something Fun on a Large Scale

Host a remote control race or race series

Revamp a local park
**PARK**

Story Continued

Continued from A1

"They'd rather build them in a different spot." All Dohrmann’s students have to do is raise the funds to create the track. The students estimate the cost of the track will be between $6,000 and $7,000.

While the students and their parents hope to have the track up and running before the school year is out, Dohrmann said it might take a little longer than that.

"We are in the very beginning stages," Dohrmann said. "We are working out details with the village. I’m not sure on timeline yet."

The students are part of the Rocket Outdoors and Ventures in Education (ROVE), a club founded in 2012 in Dohrmann’s fifth-grade classroom at Reese Elementary School.

Dohrmann discovered his students had an interest in radio-controlled (RC) cars. He used this interest to delve into science, technology and engineering topics with them. Since then, ROVE has grown into a multi-tiered program that involves students from elementary through high school.

ROVE’s mission is to encourage students to explore science, technology and engineering topics in a fun and engaging way.

"We aim to reach as many students as possible," Dohrmann said and to show them the exciting possibilities of a career in a STEM field.

During the winter months, ROVE hosts a once-a-month RC race series at Reese High School. Many students, as well as many adult racers, participate in the all-day event.

The students not only learn how to drive RC cars on a track, they also learn about the mechanics of the vehicles and how to fix them if they break. They interact with adults in the community and volunteer their time with setup and tear-down of the track.

Having an outdoor track, Dohrmann said, will allow that to continue throughout the year. While the outdoor track primarily will be used for testing and training, he said he’d like to eventually see it also host some RC vehicle races.

An outdoor track also will help the high school team, which participates in the Mini Innovative Vehicle Design Challenge. In this challenge, students modify a 1/10 Traxxas Slash 4x4 RC vehicle, which they then use to tackle challenges of speed and agility at Kettering University in May. Last year, the students won several awards, including one for performance.

Raymond said the group already has begun to raise funds to pay for constructing the track.

Mark Haney is a staff writer for The Advertiser. He can be reached at haney@localreporter.com.
Field Trips!

Visit Colleges

Visit Local Businesses

Try to find things in the area students and/or parents didn’t know were local.
Celebrate Accomplishments
Connections

jacobdohrmann@gmail.com

Facebook: @reeserove

Instagram: @rhsinnovators @reeserove

Website: Coming… students working to revamp Square One:
https://www.squareonenetwork.org/

Thanks for attending!