



ALL SAINTS SCHOOL  
**SCIENCE FAIR**  
2020

**IMPORTANT DATES TO REMEMBER:**

- Jan. 21, 7-8 PM**      **Parent Information Night**  
Science experts provide Science Fair overview, project examples and suggestions for parents, followed by Q&A.
- Feb. 14 and Feb. 28**  
**8:30-9:30 AM**      **Parent/Student Help Sessions (2nd – 5th Grades)**  
Assistance for 2nd-5th grade students and families. Meet at the Library to get help or support from volunteer science experts. (Students will meet at office and walk over to join parents.)
- Mar. 18, 7:30-8 AM**      **Project Drop Off**  
Students and families bring in project presentations in gym and set up.
- Mar. 18, 8-11 AM**      **Science Fair: Student Viewing and Judge Reviews**  
Throughout the morning, classrooms walk through the fair and science experts judge projects and provide feedback.
- Mar. 18, 6:30-7:30 PM**      **Science Fair: Open House**  
Students, family and friends invited to view projects in the school gym.

Detailed information packet available online at [www.allsaintsportland.com/sciencefairpacket](http://www.allsaintsportland.com/sciencefairpacket)



**ALL SAINTS SCIENCE FAIR REGISTRATION FORM**

1. Student Participant Name: \_\_\_\_\_
2. Student Grade and Teacher: \_\_\_\_\_
3. Adult Helper Name & Relationship to Student: \_\_\_\_\_
4. Parent Signature: \_\_\_\_\_

Yes, the student will participate in the optional 3-5 minute oral presentation of their Science Fair project.

Please bring **completed tear-off section** to the front office or Parent Information Night.



## INTRODUCTION

All Saints Science Fair is a chance to have fun and encourage a spirit of scientific inquiry. Students look at understanding the world around us through experimentation and problem solving, and develop key skills along the way.

**Using the scientific method, students will test a hypothesis around a theme like chemistry, physics or life sciences.** The experiments, observations and results are documented to share with students and families at a school-wide fair. Science experts and enthusiasts will review each project with awards given to participants and best in-class.

## PARTICIPATION

2nd-5th Grade Science Fair projects are voluntary for students to complete at home with the help of friends or family. Suggestions and resources for creating the hypothesis and experiments are available, as well as two Friday morning help sessions with expert volunteers for support or assistance along the way.

Students are required to use the scientific model for their projects. This includes:

- Ask questions, research and form hypotheses
- Create experiments to test those hypotheses
- Organize data and draw conclusions
- Share process and results on a display board
- Science fair project submissions are limited to individuals or teams of 2 students maximum.

There is also the option to participate in a 3-5 minute oral presentation to one or two judges the morning of the Science Fair. It is a great opportunity for students to work on presentation skills by giving a verbal overview of their project! Additional awards will be given for best oral presentations.

## MORE INFORMATION

Please join us by participating in your own scientific explorations with your child! **Complete the Participation Form** and turn in to the office at your earliest convenience or at Parent Information Night.

You are invited to our **Parent Information Night on January 21 from 7-8 PM** in the Library for more **detailed information of the program and project ideas.**

Detailed information packet is also available online at [www.allsaintsportland.com/sciencefairpacket](http://www.allsaintsportland.com/sciencefairpacket).

Questions: Keith Zawadzki at [keith.e.zawadzki@intel.com](mailto:keith.e.zawadzki@intel.com) or Reniera Eddy at [reniera.eddy@gmail.com](mailto:reniera.eddy@gmail.com)

#	Theme	Question	Data to Measure	Reference
1	<b>Chemistry:</b> Reactions	Are enzymes the key to laundry stain removal?	Qualitative: ability for different detergents and enzymes to remove different stain types	<a href="https://www.sciencebuddies.org/science-fair-projects/project-ideas/Chem_p039/chemistry/are-enzymes-in-laundry-detergents-effective-stain-removers">https://www.sciencebuddies.org/science-fair-projects/project-ideas/Chem_p039/chemistry/are-enzymes-in-laundry-detergents-effective-stain-removers</a>
2	<b>Chemistry:</b> Reaction Rates	Can you slow down or speed up a chemical reaction?	Reaction speed vs reactant size/temperature	<a href="https://www.education.com/science-fair/article/reaction-speed-particle-size/">https://www.education.com/science-fair/article/reaction-speed-particle-size/</a>
3	<b>Chemistry:</b> Reactions	Can you make a battery out of fruit or vegetables?	Electrical current(Amps) vs fruit type/nail coatings [need ammeter]	<a href="https://www.teachengineering.org/activities/view/cub_energy2_lesson04_activity2">https://www.teachengineering.org/activities/view/cub_energy2_lesson04_activity2</a>
4	<b>Chemistry:</b> Reactions	What percentage of air is oxygen?	Perform experiment to estimate about of oxygen in air	<a href="https://www.sciencebuddies.org/science-fair-projects/project-ideas/Weather_p004/weather-atmosphere/oxygen-content-of-air-rust#summary">https://www.sciencebuddies.org/science-fair-projects/project-ideas/Weather_p004/weather-atmosphere/oxygen-content-of-air-rust#summary</a>
5	<b>Physics:</b> Gravity, Forces, Mechanical Advantage	How do elevators work and can you increase the maximum weight?	Mechanical advantage vs #/size of pulleys [need spring scale]	<a href="https://www.teachengineering.org/activities/view/cub_simple_lesson05_activity1">https://www.teachengineering.org/activities/view/cub_simple_lesson05_activity1</a>
6	<b>Physics:</b> Gravity, Forces	What is the best water dam design to produce the most power?	Distance water spouts out vs water depth, hole size	<a href="https://www.education.com/science-fair/article/earth-science_squirter1/">https://www.education.com/science-fair/article/earth-science_squirter1/</a>
7	<b>Physics:</b> Gravity, Forces	What is the best launch angle for height or distance?	Catapult launch distance or height vs angle/object weight/force	<a href="https://www.sciencebuddies.org/science-fair-projects/project-ideas/Phys_p085/physics/use-a-catapult-to-storm-castle-walls">https://www.sciencebuddies.org/science-fair-projects/project-ideas/Phys_p085/physics/use-a-catapult-to-storm-castle-walls</a>
8	<b>Physics:</b> Potential vs Kinetic Energy	How to design a roller coaster?	Marble coaster speed or time(kinetic energy) vs tower height(potential energy)	<a href="https://www.teachengineering.org/activities/view/duk_rollercoaster_music_act">https://www.teachengineering.org/activities/view/duk_rollercoaster_music_act</a>
9	<b>Physics:</b> Gravity, Forces	What is the best airplane design?	Flight distance vs wing size/shape/weight	<a href="https://www.teachengineering.org/activities/view/cub_airplanes_lesson06_activity1">https://www.teachengineering.org/activities/view/cub_airplanes_lesson06_activity1</a>
10	<b>Physics:</b> Electromagnetism	How do you create an electromagnet?	# of paper clips vs # of coils	<a href="https://www.teachengineering.org/activities/view/cub_mag_lesson2_activity1">https://www.teachengineering.org/activities/view/cub_mag_lesson2_activity1</a>
11	<b>Physics:</b> Electrical Conduction	What materials conduct electricity?	Electrical current(Amps) vs material [need ammeter]	<a href="https://www.sciencebuddies.org/science-fair-projects/project-ideas/Elec_p018/electricity-electronics/conductors-insulators-basic-circuit">https://www.sciencebuddies.org/science-fair-projects/project-ideas/Elec_p018/electricity-electronics/conductors-insulators-basic-circuit</a>
12	<b>Physics:</b> Thermal Conduction	What materials are best for keeping items hot or cold?	Measure how fast heat is lost from various containers – glass, plastic, metal. Do the same materials which conduct electricity also conduct heat?	<a href="https://www.steampoweredfamily.com/activities/heat-transfer-projects-for-kids-stem-activities/">https://www.steampoweredfamily.com/activities/heat-transfer-projects-for-kids-stem-activities/</a>
13	<b>Physics:</b> Thermal Conduction	How does land affect local temperatures?	Measure temperatures in different environments: NSEW of building, over road, over grass, basement, attic, etc.	
14	<b>Physics:</b> Gravity, Forces, Pressure	What is barometric pressure and how does it change versus location?	Measure the barometric pressure at various places (mountain/hill, in valley, various levels of elevator) vs elevation (smart phone app).	<a href="https://easyscienceforkids.com/make-your-own-barometer/">https://easyscienceforkids.com/make-your-own-barometer/</a>
15	<b>Physics:</b> Magnetism	How do you create a magnetic chain reaction?	Distance/speed ball travels vs # of magnets	<a href="https://www.scienceproject.com/projects/detail/Free/FG043.asp">https://www.scienceproject.com/projects/detail/Free/FG043.asp</a>
16	<b>Physics:</b> Bernoulli's Principal	How does wind impact air pressure?	Time for objects to collide vs separation distance/temperature/wind speed	<a href="https://www.sciencebuddies.org/science-fair-projects/project-ideas/Aero_p039/aerodynamics-hydrodynamics/bernoulli-principle#procedure">https://www.sciencebuddies.org/science-fair-projects/project-ideas/Aero_p039/aerodynamics-hydrodynamics/bernoulli-principle#procedure</a>
17	<b>Physics:</b> Properties of Matter	What objects float versus sink?	Plot sink or float vs density ( values > 1 sink, and < 1 float). Density= wt/volume and volume can be determined by displacement of water. Compare different woods or metals.	<a href="https://easyscienceforkids.com/all-about-sink-and-float/">https://easyscienceforkids.com/all-about-sink-and-float/</a>
18	<b>Physics:</b> Properties of Matter	How do dissolved substances change the density, boiling/freezing point of water?	Test float or sink objects in tap water. Retest as you add more salt to change the density.	<a href="https://sciencing.com/water-density-science-experiments-8029220.html">https://sciencing.com/water-density-science-experiments-8029220.html</a>
19	<b>Life Sciences:</b> Photosynthesis	How to optimize plant growth?	Plant growth vs amount of water/light/soil pH/color of light	<a href="https://education.seattlepi.com/experiment-ideas-photosynthesis-6593.html">https://education.seattlepi.com/experiment-ideas-photosynthesis-6593.html</a>
20	<b>Life Sciences:</b> Human Body	How Does Heart Rate Change with Exercise?	Measure heart rate (phone app) vs activities, try different sample groups including gender(boy vs girl), age (kids vs adults)	<a href="https://www.sciencebuddies.org/science-fair-projects/project-ideas/Sports_p006/sports-science/heart-rate-change-with-exercise#summary">https://www.sciencebuddies.org/science-fair-projects/project-ideas/Sports_p006/sports-science/heart-rate-change-with-exercise#summary</a>
21	<b>Life Sciences &amp; Physics</b>	What is the best sports drink?	Electrical current(Amps) vs sports drink [need ammeter]	<a href="https://www.sciencebuddies.org/science-fair-projects/project-ideas/Chem_p053/chemistry/electrolyte-challenge-orange-juice-vs-sports-drink#summary">https://www.sciencebuddies.org/science-fair-projects/project-ideas/Chem_p053/chemistry/electrolyte-challenge-orange-juice-vs-sports-drink#summary</a>
22	<b>Biology</b>	What household objects have the most germs?	Bateria growth after X days vs sample [need purchase petri dishes prefilled with agar]	<a href="https://www.scienceproject.com/projects/detail/Free/FG043.asp">https://www.scienceproject.com/projects/detail/Free/FG043.asp</a>