Aquarian Charter School 2020 Science Fair Packet

When: Thursday, January 30th, and Friday, January 31st, 2020

The State Science Fair is March 27-29, 2020

Entry forms are due to classroom teachers on Monday, December 9th.

Entry forms are due to the science fair committee by Monday, December 16th.
All projects must have an entry form! The entry form is a second quarter science assignment for students in the 3rd-6th grade.

Teachers will discuss Science Fair expectations with their classes. Students will choose topics and work on their projects at home. A science fair project is required for 3rd through 6th grade students and will be part of their science grades. Kindergarten - 2nd classrooms will do whole-class in-class projects. Individual projects are optional for K-2nd students.

Students must attach the appropriate project (Experiment, Research, Model/Demonstration, or Collection) checklists to the back of their science fair boards. The checklists are in this packet and will also be given to students by their classroom teachers after the science fair committee receives the entry forms. These checklists assist students in making sure that all necessary components are present on their science fair boards.

Thursday, January 30th

Students set up their projects in the gym upon arrival to school starting at 8:00 a.m. Students are expected to have an entry form on file with the science fair committee or the project will not be accepted at this time. Students without entry forms may participate in the science fair once all other projects have been set up.

Judges will interview students throughout the morning. Science Fair ribbons and scores will be issued in classrooms on Friday, January 31st.

Science Fair is open to families for viewing from 3:15-5:00.

Friday, January 31st

Classrooms will view the fair throughout the day.
All projects must be taken home at the end of the day.

March 27th

State Science Fair begins. We strongly encourage participation. Student projects do not have to win first place at Aquarian to be able to participate.

For more information please visit https://alaskasciencefair.org/

Please leave blank For official use only	Project Number	Project Type E R D M C

Aquarian Charter Science Fair Entry Form 2020

Student Name

First _____ Last_____ Grade _____ Teacher _____

PARTNER

First _____ Last_____ Grade _____ Teacher _____

Does your project need an electrical outlet for presentation? (Circle one) YES NO

*Note: Electricity will not be available at the State Science Fair.

What kind of project are you doing? (Please see descriptions in packet)
Check only one.
Ask your teacher if you need help.

- ❑ Experiment
- ❑ Demonstration
- ❑ Research
- ❑ Model
- ❑ Collection (Grades K-2 ONLY)

Describe your project clearly:

_____
_____
_____
_____

Parent Signature_____ date_____

Teacher Signature_____ date_____

RETURN THIS FORM TO YOUR TEACHER

Entry Form is due to your teacher by Monday, December 9th

Suggested Student Science Project Timeline

September: Science fair packet available on the Aquarian website or in the office. Think about what you are interested in finding out more about. Search for books, websites, etc. that give you information about your interest area.
Get specific about your topic and your question. If you have more than one question or topic, choose the one you think you can answer with the resources you have.

October-November: Study your topic, take notes, continue to research, make your hypothesis and do your experiments. Remember live animals, plants, molds, and chemicals are not allowed in your display. Take photos or draw sketches of your process instead!

December: Evaluate your findings so far. Make your conclusions. Make graphs or other visuals if appropriate, get photos developed. Think about how to display your findings. Gather materials needed for this. (i.e. poster board, photos, markers, lettering etc.) Turn in your completed entry form to your teacher. This is part of your grade if you are in 3rd through 6th grade!

December 9th: Entry forms turned in to classroom teachers

December 9th to January 30th: Complete your project board (This always takes longer than you think!!) The visual presentation of your knowledge is evidence of your pride in what you do. DON'T WAIT UNTIL THE LAST MINUTE! The work should be yours – not mom's or dad's!

January 30th: Bring your project to school. You will be assigned a spot in the MPR based on what you told us about your project on the entry form. You will be interviewed by two different judges. They will ask you questions! KNOW YOUR STUFF! You are the expert on your project.

January 31st: Everyone in the school will see your project on display! Pick up your project after school, and take it to the State Science Fair, if you can, on March 27th. All projects must be picked up at the end of the day Friday. If you need help, make sure a parent knows.

Research Projects will be scored using Scoring Guide #1

Research

In this type of project, a student investigates a chosen topic (for example, what is causing the decline of King Salmon on the Deshka River?) by consulting primary sources, speaking with experts (scientists, nurses or doctors, etc.), and investigating a scientific site (fish hatchery, lab, factory, etc.)

- Students MUST consult an expert. This means contacting and meeting an expert in person, phone interview, or by email exchange. Students should prepare questions before meeting with an expert.

- Students MUST research scientific books and/or websites (not Wikipedia).

- All sources MUST be listed on the display board clearly.

- Students MUST do extensive research on topic. This could be any combination of scientific websites visited, scientific locations (lab, factory, office, etc.), books, and periodicals.

Students should explore the topic in depth and report the information in an interesting manner through photos, a journal, drawings, etc.

Students must use and identify scientific sources. See scoring guide #1 for more details and full criteria.

Science Experiments will be scored using Scoring Guide #2

Experiments

A student thinks about a topic of interest, poses a question about this topic, designs an experiment to investigate the question, records and reports the results, and makes conclusions based on the results (that is, they follow the scientific method). The final project is a display of the steps the student took, any successes or failures, and the implications of the data. For more details, please see scoring guide #2.

Examples

Which will freeze faster, salt water, sugar water, or tap water?
How does weight affect distance when skiing down a hill?
Which paper towel absorbs the most water?
How does the color of an object affect how warm it gets?
Do preservatives stop bread mold from growing?
What materials conduct electricity the best?

How to do an Experiment for the Science Fair

1. Choose a **topic** you are **interested** in.
2. Create a **scientific question** about your topic.
3. **Research** your topic.
4. Form a **hypothesis.**
5. **Plan** your project. Include a **time schedule** and all the **materials** you will need.
6. **Collect** all your materials.
7. **Conduct** your experiment several times. Write out your procedures step-by-step.
8. **Record** the data.
9. **Organize** the data in an orderly graph or table.
10. **Draw conclusions** from the data. **Write** a paragraph about your conclusions.
11. Gather your procedures writing, graphs, pictures, photos, drawings, journal of work, and diagrams.
12. Construct your **science fair display**. Be sure to include these parts in your display: Question, Hypothesis, Procedures, Data, Results, and Conclusion. Be sure to display where you got your information from and thank anyone who helped you.

*Ten points are awarded for clearly stating the question on the display. To be clear, the title may be written as a question, or as a topic with a question as a subheading. Either way, the question must be CLEARLY stated on the board.

Demonstrations and Models will be scored using Scoring Guide #3

Demonstrations or Models

These projects demonstrate a particular science principle or fact, or display some kind of scientific apparatus or instrument. A student may way to demonstrate the way something works, a science phenomenon, or how something is created in a lab.

The student should label any parts and describe the topic being demonstrated in all written materials. Students must use and identify scientific sources. See scoring guide #3 for more details.

Examples

- You wonder, how does the human eye work? You make a model to show how it works.
- You wonder, what are the different layers of the earth? You make a clay model to show the different layers of the earth's surface.
- You wonder, how does a camera work? You make a model of a pinhole camera and document your findings.
- You wonder, what causes light from the sun to break into different colors? You construct a model to show how light bends.

Collections will be scored using Scoring Guide #4

Collections (Kindergarten – 2nd grade only)

Collections should be displayed with photos (or accurate drawings) only. Photos or drawings should be on the science fair board.

A collection is an assembly of items that shows variety, diversity, and distinctions within a subject area. Collections should show as many samples as possible to represent the diversity of a topic. Students should show clear labels and written materials to explain details of the collection. Students must use and identify scientific sources. Please see scoring guide #4 for more details.

Examples

- Rocks, seashells, birdhouses, or plant seeds
- Grouped pictures of herbivores, omnivores, and carnivores
- Groups of biodegradable and non-biodegradable materials

Scoring Guide #1
Judge_____

Student _____ Grade Level _____
Partner _____ Grade Level _____
Project # _____

Science Fair

RESEARCH Project Scoring Guide

Topic is clearly stated on display circle one No/0 Yes/10

Display includes pictures/diagrams/photos/
journal that support project research _____ /10

Sources identified and listed on board circle one No/0 Yes/10

Evidence of expert consulted/interviewed _____ /10

Information clearly displayed _____ /10

Evidence of Research
Scientific website and/or location visited _____ /10

Effective oral presentation _____ /10

Student completed project _____ /10
(with appropriate amount of parental help)

Project is neat, visually appealing _____ /10

Project is well-organized _____ /10

TOTAL _____/100

Judge's Comments:

Scoring Guide #2

Judge_____

Student _____ Grade Level _____
Partner _____ Grade Level _____
Project # _____

Science Fair

EXPERIMENT Project Scoring Guide

Question is clearly shown in display circle one No/0 Yes/10

Hypothesis is clearly shown in display circle one No/0 Yes/10

Display includes DATA (graphs or tables) _____/10
AND pictures, diagrams, photos, and/or
journal that support project research

Oral presentation reveals student observations _____/10

Procedures clearly outlined _____/10

Results clearly stated _____/10

Conclusion is logical and thoughtful _____/10

Student completed project (with appropriate amount of parental help) _____/10

Project is neat, visually appealing _____/10

Project is well-organized _____/10

TOTAL _____/100

Judge's Comments:

Scoring Guide #3
Judge_____

Student _____ Grade Level _____
Partner _____ Grade Level _____
Project # _____

Science Fair

DEMONSTRATION/MODEL Project Scoring Guide

Topic is clearly stated in display circle one No/0 Yes/10

Display includes pictures/diagrams/photos/ journal that support project research _____/10

Sources identified and listed on board _____/10

The model or demonstration is an accurate representation of the scientific topic _____/10

Information clearly displayed _____/10

Scientific web site investigated and/or scientific location visited _____/10

Effective oral presentation _____/10

Student completed project _____/10
(with appropriate amount of parental help)

Project is neat, visually appealing _____/10

Project is well-organized _____/10

TOTAL _____/100

Judge's Comments:

Scoring Guide #4

Judge_____

Student _____ Grade Level _____
Partner _____ Grade Level _____
Project # _____

Science Fair

COLLECTION Project Scoring Guide

Subject of collection is clearly shown on display circle one No/0 Yes/10

Display includes <u>labeled</u> illustrations, photos, or items collected _____/25

Illustrations/photos/items and text support topic _____/10

Sources identified and listed on board
(examples: expert consulted, scientific location visited, books, website) _____/10

Effective oral presentation _____/10

Student completed project _____/10
(with appropriate amount of parental help)

Project is neat, visually appealing _____/15
Project is well-organized _____/10

TOTAL _____/100

<u>Judge's Comments:</u>

Name(s): _____ Teacher: _____

Research Project Student Checklist

ATTACH THIS CHECKLIST TO THE BACK OF YOUR DISPLAY

	YES!
My topic is clearly stated on my display	
My display includes pictures, diagrams, or photos that support project research. If I used one, my research journal is with my display.	
My sources I used for research are listed on my board (Sources include websites, books, interviews, etc.)	
There is evidence that I consulted an expert on my display	
There is evidence that I researched my topic on my display (notes, facts, findings, summaries, etc.)	
I have practiced my oral presentation	
I completed the project with the appropriate amount of parental help	
My display is neat and visually appealing	
My display is well-organized	

Name(s): _____ Teacher: _____

Experiment Project Student Checklist

ATTACH THIS CHECKLIST TO THE BACK OF YOUR DISPLAY

	YES!
My scientific question is clearly shown on my display	
My hypothesis is clearly shown on my display	
My display includes data (graphs and tables)	
My display includes pictures, diagrams, photos, and/or journal that support research	
My procedures are clearly outlined on my display	
My results of the experiment are clearly stated	
My conclusion is clearly stated	
My project is neat and visually appealing	
My project is well-organized	
I completed the project with the appropriate amount of parental help	
I practiced my oral presentation	

Name(s): _____ Teacher: _____

Demonstration/Model Project Student Checklist

ATTACH THIS CHECKLIST TO THE BACK OF YOUR DISPLAY

	YES!
My topic is clearly stated on my display	
My display includes pictures, diagrams, or photos that support project research. If I used one, my research journal is with my display.	
My sources I used for research are listed on my board (Sources include websites, books, interviews, etc.)	
The model or demonstration is an accurate representation of the scientific topic	
Information about my scientific topic is clearly displayed	
Information I learned from visiting a scientific website or location is evident on my board	
I have practiced my oral presentation	
I completed the project with the appropriate amount of parental help	
My display is neat and visually appealing	
My display is well-organized	

Name(s): _____ Teacher: _____

Collection Project Student Checklist

ATTACH THIS CHECKLIST TO THE BACK OF YOUR DISPLAY

	YES!
The topic of my collection is clearly stated on my display	
My display includes labeled illustrations, photos, or items	
My text and illustrations/photos/items support my topic	
The sources I used are listed on the display (Sources include websites, books, interviews, etc.)	
I have practiced my oral presentation	
I completed the project with the appropriate amount of parental help	
My display is neat and visually appealing	
My display is well-organized	

Science Fair Judging Criteria

We are looking for excellence in these three areas:

1) Project Content/Scientific Content or Process Skills: Judges will look for whether you used some or all of these: observation skills, measurement, making comparisons, and/or accurate data collection and reporting. They will also look at whether your information is scientifically correct.

2) Creativity/Appropriateness: Does your project show a level of uniqueness or original thought? Is it appropriate for your grade level?

3) Display/Neatness: Is the display neat and easy to read? Does it show good workmanship, correct spelling and accurate illustrations? Is the information displayed in a way that it is easy to identify the important parts?

Potential Interview Questions

Students should be prepared to answer these potential interview questions. Each interviewer will be asking more than just scientific questions regarding the Science Fair project.

* How did you get the idea for your project? Tell me how you went about doing it.
* Where did you find the information about the project? Did you interview anyone?
* What was the hardest part about finding information?
* What observations did you make while working on the project?
* What three things did you learn from this project?
* What was your favorite part?
* If you had help from someone, in what ways did s/he help you?
* If you do the project again, how or what would you change?
* Did this project make you think of any future projects you would like to try?

Overall Considerations

A good display is important to your project! The purpose of your display is to grab people's interest – then tell them the story of your project, all in the short time they may spend looking at it. The display should stress the most important ideas, then provide *some* detail once interest has been stirred. If the display is hard to read, if it is cluttered with less important details, or if there is no logical way to follow the project from idea to conclusion, people may not make the extra effort to understand what you have done. Here are a few ideas to help you design a good display.

Display Panels

A freestanding display creates an enclosed environment for your project and is ready to go anywhere. It's not hard to make a 3-panel display that is hinged and freestanding. Some good panel materials are:

- Mat Board – available at art supply stores or frame shops
- Cardboard – found anywhere (Consider large appliance boxes)
- Poster Board – found anywhere (But must be reinforced)
- Duct Tape – great for creating invisible hinges on the back of your panels to connect three together
- Paint, Construction Paper, or Contact Paper – great for creating a one-color background

Color

Colors may serve many different purposes. You might use colors to unite certain aspects of your project that belong together. Colors can also convey or reinforce certain ideas. For example, in a heat exchange experiment, red might convey *hot* and blue *cold*. A bright color among pale colors, or against black and white, can make something really stand out. An overall color theme can give focus to your display and make it

easier to read and more pleasing to look at. (Including your report cover in your color theme is a nice touch, too!) Too many colors, or colors that don't go together, will detract from your display. For example, a yellow background with a red border and blue and green type could be garish and hard to read – the blue and green might be too much alike to tell apart easily, and the red and yellow might be too bright for their purpose. Be stingy with your colors - save them for when they are most needed!

Good Color Combinations: Dark or vibrant blue with white accents
Black with red or white accents
Red with black or white accents
Black with strong yellow accents

Panel Layout

A good layout has balance. Pictures don't have to be the same size or look the same. In fact, that might be boring! PLACEMENT is what matters – one large photo or picture can be balanced with two or three small ones. (A layout example is on the back of this page) A good picture CAN BE worth 1,000 words, so think about the photos or illustrations you will use to summarize the various aspects of your project.

Lettering/Headlines/Types

The attention-getting headlines should be readable from way down the aisle. The subheadings should be readable from across the aisle, and the body text by someone standing next to your display. Be cautious when using "fancy" type styles. Text in script or ornate fonts and styles can be difficult to read.

DISPLAY AND SAFETY REGULATIONS

1. A student may enter only one project, and it must be his/her own work.
2. The student is responsible for setup and removal of the project. He or she must supply whatever tools are necessary for setup and removal.
3. Name and class should be noted on the back of the Science Fair display. Please do not put this information on the front where it could be seen by an observer or judge.

SCIENCE FAIR DISPLAYS MAY NOT CONTAIN THE FOLLOWING: (USE PHOTO DOCUMENTATION)

* Live animals or plants or dried plants
* Shells, rocks, or minerals
* Food materials (NO EXCEPTIONS)
* Soil, solutions, chemicals, household products or water, dry ice or other sublimating solids. (display of clean, empty containers is acceptable)
* Drugs or drug look a-likes
* Microorganisms, algae, mold, bacteria, or protozoa
* Preserved animal parts (Teeth, fingernails, feathers, hair and bones may be OK if preserved and sealed in plastic)
* Exposed electrical apparatus or open batteries (wiring must be insulated)
* Flammable gases or open flames
* Unshielded fans, light bulbs, belts, pulleys, chains or moving parts with tension or pinch points
* Photos of animals in surgical or lab procedures
* Sharp items such as needles, scissors, glass tubing, or syringes
* Awards, medals, flags, or trading cards

SCI PRO - This is a suggested layout. Your board should flow in the same fashion but may be modified to fit your project. Boards are due _____