Taking Flight
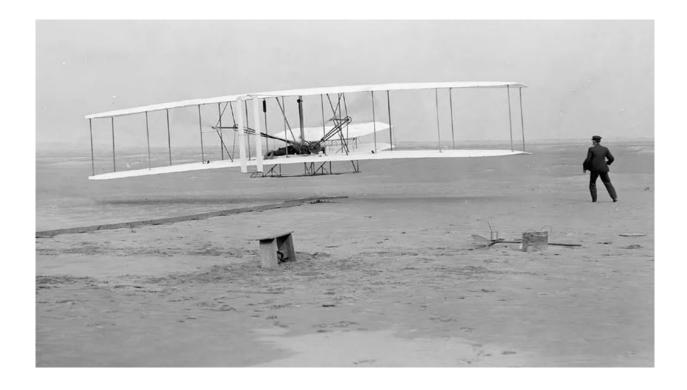

Coolidge Corner School's 20th Science Fair

February 1st, 2020

Information Packet for Students and Parents

Rules and Dates

Who? Any registered Brookline school student in preK-8. Middle school students will participate in a townwide Middle School Science Fair that is open to any registered Brookline student in grades 6-8 (see p.5 of this packet for information on the Middle School Science Fair)

When? Saturday February 1st, 2020, 8:30 am-12:30 pm

Where? Coolidge Corner School Gym & Lunch Room

Theme? What do you Wonder About?

How? Projects are to be carried out and made by children during non-school time.

Subjects? All scientific fields: computers, biology, environment, chemistry, physics, math, architecture, astronomy, engineering, modeling, robotics, consumer-related. Any area of science is welcome.   **THE PROJECT DOES NOT NEED TO MATCH THE THEME**

Projects? Projects can be experimental (setting up an experiment to answer a question) or invention/design projects (engineering or computer projects in which a tool or system is devised to accomplish a task or process).

Deadline? Register by Friday, January 21st, 2020

Schedule

8:30 **Registration/Set up opens:** The lunch room will be open so students can set up their projects.

9:00-12:00 **Science Fair/Science Expo**: The science fair opens to the public. At the science Expo, enjoy hands-on exhibits, and activities presented by professional scientists.

9:00-11:30 **Judging time:** The student participants present their projects to the judges, view the other projects and visit the activity expo.

12:00-12:30 **Award ceremony**

What Is a Science Fair?

A science fair is a place for students to present their science projects to professional scientists and to the community. Its main purpose is to get you excited about science by doing it rather than simply learning about it. A scientist first asks a question about some aspect of the world and then tries to find its answer. At the science fair, each student presents a project, both visually and orally, with the question and answer displayed in an interesting way. Students should be able to explain their projects and answer questions.

The science fair will also include a science activity expo, where students will have an opportunity to see and interact with cool technologies, devices, and scientists.

Registration

- Please complete the required registration form. You can register on-line at https://www.brookline.k12.ma.us/ccs/sciencefair
- Extra Science Fair Information also at: https://www.brookline.k12.ma.us/ccs/sciencefair

- **Registration deadline is Friday, January 21st, 2020**

**It is very important that we know how many projects will be at the fair in order to recruit and assign judges to projects. If you register then decide to drop out, please inform us as soon as you decide. No reason or apology is needed. Simply contact the science fair organizers at: coolidgecornersciencefair@gmail.com.

Exhibition

Each project must have an exhibition that includes:
- Poster
- Oral presentation
- Log book or journal

The exhibition may also contain:
- Physical model
- Computer program
- Demonstration
- Special apparatus

Poster

Poster size:
- A standard table space will be given per project
- The exhibit will include a poster and an optional physical model
- Poster should be *free-standing* (e.g. three sides of a cardboard box work well, or you can buy a standard, tri-fold poster at stores like Staples.)

Poster should include:
A short report that contains:
- *Introduction*: Background information on your topic, why you chose this topic
- *The question*: What is the question you set out to answer? Include your hypothesis (for experimental projects) or statement of purpose (for invention/engineering/computer projects).
- *Materials and methods (procedure)* – How did you try to answer your question? Explain the materials you used and how you conducted your experiment or how you planned and built your invention/design.
- *Results* - Show and explain your observations and results (include graphs, charts, tables, drawings or photos). Include your original log book or journal with your project at the fair!
- *Conclusions* – What did you conclude about the question you investigated?
- *Bibliography* – List any references or sources if you did research.

Oral Presentation

Participants will present the project before the judges and answer their questions. An average presentation is between 5 and 10 minutes. Practice your presentation before the Science Fair so you'll feel comfortable presenting to the judges!

Physical Model or Demonstration

- A physical model should fit on a standard school desk.
- If your exhibition or demonstration has special display needs (such as electric outlet, water supply) you must make these needs known in advance (on the registration form).

Computer Program

If your exhibit requires the use of a computer program during the science fair, it would be best if a laptop were used, as the number of electrical connections is limited.

Log Book (or Journal)

It is important to keep records of what was done during any science project, including both successes and failures. Each project is expected to have a log book or journal in which you record your data.

Safety Rules

- Do not hurt or scare people or animals, including yourself, as part of an experiment.
- Do not publish the names of your subjects.
- Do not use dangerous materials in your project except in very special situations when you get permission from the coordinators. Ask advice about this from your parents or the organizers.

Judging Criteria and Awards

All students have the option of being judged, but only those in grades 3-8 are included in the formal voluntary competition (Students in Pre-K through 2 can interact with judges and receive feedback, but there will be no competition.) Students do not have to compete or be judged; however, we encourage all students to speak with the judges as most kids report that this is the highlight of the fair for them.

Judging takes place by grade. Group projects that include students from different grades are classified according to the grade of the oldest participant. A first prize and, potentially, additional prizes will be awarded in each grade from grade 3-8. The total number of awards will be no more than one-quarter of the number of projects in that grade. Home-built models carry more weight than commercial kits. Since novelty and creativity are important, there may be fair-wide awards for different criteria such as funniest, outstanding originality, most unusual, etc.

Proposed judging criteria (more detailed criteria for the Middle School Science Fair are on p.4):
Oral Presentation (inc. Q+A with judge)   30%
Creativity   30%
Scientific Excellence   30%
Poster   10%
Bonus: Organized log book (or journal)

What Makes a Good Project?

1. Ask a question in a subject you are interested in – it's something you like to think about and will be happy to spend time working on. For example, you may have a pet bird at home who is a very picky eater. What is its favorite food? Does it ever get tired of eating the same food all the time?
Once you've chosen a question, you must figure out a way to find the answer to your question. There are many ways to answer questions. You can design an experiment or a survey, build a model, or write a computer program that can help you find the answer.

2. A good project is one you can do mostly by yourself, with only a little help from grown-ups: parents, Science Fair Organizers (our names and contact information are at the end of the packet), teachers, and friends. The reason to do a project is because it is fun and will help you learn something you didn't know before. Having someone else help you too much takes away some of your fun at discovering something new, and you don't learn as much. Your project doesn't have to be perfect – if it follows the scientific method and is neat enough to read, then it is good.

3. A good project is something you design and build by yourself from regular or every-day materials. Doing it by yourself is more satisfying than simply buying a kit someone else made in the store. Creative projects using basic materials make for the most impressive science fair projects!

4. A good project is one that, when you're done with it, makes you wonder about other things. Did seeing what happened in your project make you think of other questions you'd like to know the answer to? That's a great project!

Middle School Science Fair

The Middle School Science Fair is also sponsored by CCS's PTO and takes place within the context of the larger CCS Science Fair; however, it is a town wide fair open to any Brookline student in grades 6-8. The Middle School Science Fair will be judged by professional scientists who do not have an affiliation with the participating schools. Each project will be reviewed by two judges.

Participants in our town wide Middle School Science Fair may qualify to go on to regional and statewide science fairs. Each school within Brookline can send up to 10 projects to the Massachusetts Region V Middle School Science & Engineering Fair, which will be held on April 22 at Regis College. Additional information can be found at:

https://sites.google.com/site/regiscollege-edu-region-v-science-fair-teams-edition-backup/

or by talking with your science teacher or asking the science fair team at coolidgecornersciencefair@gmail.com.

Please consider when planning your project that If your research involves human subjects and you would like to represent CCS at the regional fair, you will be required to have informed consent forms from your subjects. The regional fair also has strict safety requirements that exclude the use of infectious agents, recombinant DNA and hazardous compounds.

In each of the past two years of CCS's Middle School Science Fair, several projects from our fair went on to the regional science fair, and some of those went on to the statewide fair. The atmosphere was very positive and exciting, and students had a great time, both academically and socially.

The Middle School Science Fair judging criteria are more detailed and have been borrowed from the Massachusetts regional fair (these are also available by link to the above website):

1. Scientific Approach   (possible 25 points)
A. Did the student start with a clearly stated hypothesis or statement of an engineering goal?
B. Was the student orderly and logical with the setup and follow through of the project?
C. Were the student's conclusions consistent with the data he or she collected?

2. Knowledge of Project Area   (possible 20 points)
A. How effectively did the student conduct preliminary research?
B. What was the extent of the student's knowledge of material related to project?
C. Was the student aware of both the scope and limitations of the project?

3. Thoroughness   (possible 20 points)
A. Did the student do sufficient research in the literature before starting the project?
B. Was thorough use made of data and observations?
C. Was the original plan successfully followed through to completion?

4. Written Records and Reports   (possible 15 points)
A. Did the student keep an original handwritten, bound logbook with all plans, procedures, observations, and conclusions for failures as well as successes?
B. Did the student put together an accurate written report, complete with a bibliography?

5. Ingenuity and Creativity   (possible 15 points)
A. Was the explanation of the project clear and precise?
B. How well did the student use his or her materials in the solution of problems?
C. Did the student present any new or unique ideas?

6. Visual Presentation   (possible 5 points)
A. Was the project displayed in a logical and organized manner?
B. Were charts and graphs used where needed?
C. Did the display and posters effectively convey the message in an understandable manner?

Questions?   Want to Volunteer (before or on day of fair)? Contact Science Fair Organizers at coolidgecornersciencefair@gmail.com.