**The Importance of the Science Fair on Student Development**

* **Critical Thinking:**

Students must find a problem and then figure out a possible way to solve that problem. This involves in-depth consideration of possible problems, critical thinking about the problem they choose to focus on, and ingenuity and problem solving in finding a solution to the problem. All these actions are important skills that will benefit the student their entire lives.

* **Involves all of what they have learned in the classroom:**

The science fair does not only involve science concepts. It also involves language and mathematics and, depending on the chosen topic, can involve music, history, geography, botany, biology, communication etc. Creativity and art are also involved in designing and creation of the poster. This project asks them to use all the skills that they have learned in the classroom in tandem and this allows them to see how these subjects work together and overlap on another.

* **Longer project means they can go more in-depth:**

Because the science fair is a long-term project, longer by far than most homework assignments, students can go further in-depth on their topic and learn a great deal more than they would be able to on a short-term project. This also means that they can gain a deeper understanding of many of the subjects they have learned in class as well as they use them in their project.

* **Early start on Public Speaking skills:**

Even as adults, public speaking is something that many people struggle with. By having the students give several presentations, one to each of the classes, this allows them to not only have experience with public speaking but also to develop and refine their presentation a little bit each time. They will also learn how to prepare to answer questions about their presentation and project outside of just what is on their poster. In this way, our students will have a leg up when they give presentations or public speaking in high school and/or college.

* **Helps to develop time management, planning, and organization skills:**

As this is a long-term project which requires a good deal of forethought, good time management, planning, and organization skills are required. If a student does not manage their time well, they will have to rush to do everything at the last minute. If they do not plan well, their project may not turn out the way they would have liked and if they do not organize their work, their poster may end up seeming scattered or they could lose important work and must do parts of the project over again. As they participate in the science fair throughout their years at Montessori, they will learn what does and does not work for them and these skills will develop over time. By the time they reach the Adolescent class they should have a good sense of time management, planning, and organization.

* **They get to work on topics of their own choosing:**

This allows them to explore the areas and subjects that they are interested in. When a student works on a topic that interests them, their natural curiosity and drive to learn grows. It feels less like an assignment and more like a fun experiment. It can also lead to them discovering an area of passion that can help them to discover what they want to do in the future.

* **Sparks scientific curiosity:**

STEM, which stands for science, technology, engineering, and math, is a continually growing area of study. A science fair project may very well be the thing that sparks a scientific curiosity in a student which can lead them to exploring STEM classes and opportunities in the future.

* **Can teach how to learn from failure:**

As does much in life, not all science projects go according to plan. Even the most seasoned of scientists have experiments that don’t go right. However, it is these very ‘failures’ that can lead to scientific breakthroughs. We would not have antibiotics if it weren’t for a scientist leaving his petri dishes out and later just happening to notice what would become known as penicillin growing and destroying the bacteria that causes strep throat. He was researching the flu at the time so he did fail to find the cure for the flu, and he could have just thrown out the petri dishes when he noticed something growing in them but instead his scientific curiosity lead to the discovery of the first antibiotic. Failure isn’t as terrible as it is made out to be. It can be the key to future successes if students allow themselves to learn from it. Some of their projects might not work or the results may be inconclusive, but they can build upon what they learned on their next project and learn how to find success through failure.