LLTC STEM proposal for purchase of 3D printer

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Objective:

In order to facilitate the growth of Leech Lake Tribal College as a leader in technology access, and to facilitate the growth of the STEM department and its programs, this proposal outlines the benefits and proposes the purchase of a 3D printer.

Background:

3D printing is quickly becoming one of the most common methods for fabricating custom parts that are impossible to create with traditional injecting molding. The cost of this technology has steadily decreased over the last decade or so and is now well within the range of acceptable cost. This method of fabrication is becoming increasingly common in all sorts of settings from high tech manufacturing to hobby tinkering. The benefits of offering experience with and access to this technology to students is not hard to see when it is quickly becoming the norm for things like fast prototyping of parts and objects for science-related tasks, but also artistic applications.

Applications:

The rocket team is would be a great place for this technology to come into play quickly. The ability to quickly create custom parts for electronics bays and other aspects of LLTC’s high-power rocketry team would give them a distinct edge over the competition and offer unique experience using high-tech equipment that is quickly becoming common place in STEM fields, but is sadly missing from many other learning environments.

The STEM club would benefit from expanded options for exploring new avenues of technology. Examples of STEM club projects might be custom quad-copters as well as basic and advanced robotics.

Art students would likely find some use in learning how to sculpt using 3D modelling software and then fabricating their creations using this technology.

Proposal:

After extensive exploration of options, this proposal recommends the purchase of the Ultimaker 2, one of the highest rated 3D printers in the field today. It’s relatively affordable at $2,500. This is a high-quality, industry standard printer. There are better printers out there, but they carry price tags an order of magnitude higher. It is designed to be a desktop model, quiet, efficient, and reliable. It has a large, approximately 9 cubic inch print space. It can print using both PLA and ABS plastic filaments (somewhat rare in the industry) and most important of all, it is relatively easy to use with open-source software. The printer itself is also open-source which means that it can be modified, upgraded, and repaired with relative ease.

Costs:

Utlimaker 2 3D: $2,500

3mm PLA spooled filament: around $39.99 per roll (recommend 3-4 rolls to get started, though by all accounts that will last quite a while).

Total: approx. $2,600

Conclusion:

I think that purchasing this 3D printer could be a valuable investment in the future of our school and the STEM department. After learning the ins and outs of operating it, I will take the lead in training staff, faculty, and students in its operation and will be personally responsible for ensuring that it is accessible to any who wish to explore the possibilities presented by this technology.