



Student Success/L18 Credit Recovery

SNC2D Optics Project

Overall curriculum expectations:

evaluate the effectiveness of technological devices and procedures designed to make use of light, and assess their social benefits;

Project Options:

Sample questions to get you thinking:

- How do anti-glare night vision glasses help people who have difficulty driving at night?
- How do optic devices help treat mental illnesses and depression?
- How do eyeglasses with colour filters help people with dyslexia to read?
- How do vision sensors help the Canadian Food Inspection Agency improve food safety?
- How are photonics used in the early diagnosis of diseases such as cancer?
- How have optical fibres enhanced our ability to communicate information?
- How do all of these technologies benefit society?
- How are outdoor lights such as street or stadium lights designed to limit light pollution in surrounding areas?

OR

- analyse a technological device or procedure related to human perception of light (e.g., eyeglasses, contact lenses, infrared or low light vision sensors, laser surgery), and **evaluate its effectiveness**
- analyse a technological device that uses the properties of light (e.g., microscope, retroreflector, solar oven, camera), and **explain how it has enhanced society**

OR

Explore an issue:

- Cameras can produce a range of optical effects, from highly detailed and realistic to manipulated and abstract. Photographic images are used for a wide range of purposes that benefit society, including in the areas of culture, education, security, policing, entertainment, and the environment. However, the widespread use of cameras raises privacy concerns.
- Laser surgery corrects vision by surgically reshaping the cornea to correct refractive defects in the eye. While the procedure is effective in most cases, it poses risks and can in some cases lead to poor night vision
- **How is it related to the optics unit? Include appropriate terminology like reflection, refraction, electromagnetic spectrum etc....**
- **Sketch or paste any appropriate diagrams that help explain how it works**
- **Future use? Environmental or health impacts?**

Format:

Gslides, website, video, podcast, infographic, comic strip, brochure, flyer, poster or you can create a model with a one page write up.

Project Choices:

Optical illusions

MRI,
Optical experiments – refraction,
CT Scan,
making a kaleidoscope,
x-ray, -sports/injury
vanishing candle, (drama)
Laser eye surgery,
pinhole camera,
myopia, hyperopia, presbyopia and how glasses and or contact lenses adjust this),
colour blindness test,
invisibility cloak,
how to survive a zombie apocalypse with optics,
optical hazards (wet road, and glare).
laser maze,
Infrared technology (laser quest),
turn your cell phone into a microscope,
blue-ray technology,
fiber optics ,
double sided mirrors,
Space and optics – why do stars twinkle,
AM-FM Radio and frequency,
Radiation – what happens when you are exposed
Radiation therapy for cancer
The sun at different wavelengths
Light therapy
UV light in nature (bees and butterflies)
Vitamin D synthesis
Glaucoma
Cataracts

Eye injuries and sports
Holograms
Lenticular objects and illusions
Infrared technology and army
Why do strobe light trigger epileptic seizures

Optics Project Checklist:

✓Project must include visuals (eg. diagrams, charts, pictures, link to videos)

✓Project must include a bibliography, APA format, upload on turnitin using the following info:

Class ID: 25499486 **Enrollment key: recov**

✓Project should take a complex idea, problem, or question and make it understandable to a younger audience - simplify)

Optics project Rubric

Categories	50–59% (Level 1)	60–69% (Level 2)	70–79% (Level 3)	80–100% (Level 4)
Communication expression and organization of ideas and information (Communication) 5 marks	expresses and organizes ideas and information with limited effectiveness clear expression, logical organization 2.5	expresses and organizes ideas and information with some effectiveness 3	expresses and organizes ideas and information with considerable effectiveness 3.5	expresses and organizes ideas and information with a high degree of effectiveness 4 - 5
Use of conventions, vocabulary, and terminology of the optics unit (Communication) 5 marks	uses conventions, vocabulary, and terminology of the discipline with limited effectiveness 2.5	uses conventions, vocabulary, and terminology of the discipline with some effectiveness 3	uses conventions, vocabulary, and terminology of the discipline with considerable effectiveness 3.5	uses conventions, vocabulary, and terminology of the discipline with a high degree of effectiveness 4 - 5
Making connections between science, technology, society, and the environment (e.g., assessing the impact of science on technology, people and other living things, and the environment) (application) 10 marks	makes connections between science, technology, society, and the environment with limited effectiveness 5	makes connections between science, technology, society, and the environment with some effectiveness 6	makes connections between science, technology, society, and the environment with considerable effectiveness 7	makes connections between science, technology, society, and the environment with a high degree of effectiveness 8 -10
Understanding of content (e.g., concepts, ideas, theories, principles, procedures, processes) (understanding) 10 marks	demonstrates limited understanding of content 5	demonstrates some understanding of content 6	demonstrates considerable understanding of content 7	demonstrates thorough understanding of content 8 -10

total				
-------	--	--	--	--

comments: