****

**BIOLOGY**

**What is it?**

(**Grades:** 10; **Credit:** 1; **Type:** Biological Science)

*Prerequisite: Physics 1*

*Honors Recommendation: Approval from 9th grade science teacher*

[](javascript:void(0))Biology is a course that explores the topics of cellular biology, genetics, life processes, and ecological relationships. Along with an understanding of broad biological concepts and principles, an emphasis is placed on personal needs and societal issues. Lab activities stress thinking, inquiry and process skills.

**Who should take it?**

* This is a required course for ALL

students.

* This is a prerequisite course for

many other science electives.

**What are the expectations?**

This is a life science which provides the foundational understanding for all other life science electives. Students will be expected to take effective notes, study outside of class and be able to apply knowledge to new situations. Students will maintain a science notebook which will act as your reference for the course. Collaboration is expected on many activities.

**Honors vs. General?**

[](javascript:void(0))Honors Biology explores the same fundamental biological concepts as Biology. However, it requires a more detailed and in-depth analysis of selected biological concepts. The course provides more opportunities for long-term assignments and projects. Intensive writing and reading assignments require students possess above average language and critical thinking skills.

**What will you study?**

|  |  |  |
| --- | --- | --- |
| **Theme** | **Topics** | **Labs/ Activites** |
| **Semester One** | | |
| What is living? | Characteristics of life  Levels of organization  Cells (intro.) | Living, nonliving, dead lab  Soybean plants  Microscopes |
|  |  |  |
| Body balance and Disease | Homeostasis  Cell membrane  Water  Cell size | Osmosis lab  Joe cell  Gel Cell Races |
| Cloning and Cancer | DNA  mitosis | Strawberry DNA extraction  DNA fingerprint |
| Stem cells | Karyotypes  meiosis | *Planaria* lab |
| Mutations  Human/ agricultural variation | Protein synthesis  Genetics  Biotechnology | Brassica lab |
| **Semester Two** | | |
| Energy through the ecosystem | Food chains  food webs  energy pyramids | African safari |
| Energy through the organism | Atoms, molecules and bonds  Photosynthesis  Cellular respiration | Fuel cell demonstration  Chromatography  Burning food lab |
| Matter (nutrition and disease) | Nutrient cycles  Macromolecules  Enzymes | Soybean plant data  Food label  Liver lab |
| Human Impact | Population ecology  biodiversity | Deer game  Something for everyone  Most wanted posters |
| **End of Course Exam** | | |
| Nature around you | Classification | Boone county organisms  Jelly belly key |

[](javascript:void(0))