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**BIOLOGY**

**What is it?**

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

*Prerequisite: Physics 1*

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

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?**

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?**

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| --- | --- | --- |
| **Theme** | **Topics** | **Labs/ Activites** |
| **Semester One** |
| What is living? | Characteristics of lifeLevels of organizationCells (intro.) | Living, nonliving, dead labSoybean plantsMicroscopes |
|  |  |  |
| Body balance and Disease | HomeostasisCell membraneWaterCell size | Osmosis labJoe cellGel Cell Races |
| Cloning and Cancer | DNAmitosis | Strawberry DNA extractionDNA fingerprint |
| Stem cells | Karyotypesmeiosis | *Planaria* lab |
| MutationsHuman/ agricultural variation | Protein synthesis GeneticsBiotechnology | Brassica lab |
| **Semester Two** |
| Energy through the ecosystem | Food chains food webs energy pyramids | African safari |
| Energy through the organism | Atoms, molecules and bondsPhotosynthesisCellular respiration | Fuel cell demonstrationChromatographyBurning food lab |
| Matter (nutrition and disease) | Nutrient cyclesMacromoleculesEnzymes | Soybean plant dataFood labelLiver lab |
| Human Impact  | Population ecologybiodiversity | Deer gameSomething for everyoneMost wanted posters |
| **End of Course Exam** |
| Nature around you | Classification | Boone county organismsJelly belly key |

