Science Investigatory Project Ideas For High School Students

List of must see SIP project ideas Project Ideas For High School Students:

Biology and Life Sciences Projects

1. Find out if music helps plants grow faster and grow strong.
2. See if colored lights make plants grow better.
3. Find out how salt water changes how bean roots grow.
4. Compare how fast seeds sprout in different soils.
5. See if talking to plants makes them grow bigger.
6. Test which home-made fertilizers help vegetable gardens best.
7. Find out how acid rain hurts different leaves.
8. See if plants can grow with no soil at all.
9. Test which home-made plant food makes more flowers bloom.
10. Compare how plants grow in water with different pH levels.
11. Find out if warm or cool temperatures change plant growth.
12. Test how little or a lot of water changes plant health.
13. See which natural bug sprays keep pests away best.
14. Compare how fast fruits and veggies rot on their own.
15. See if playing different sounds changes how chickens lay eggs.
16. Find out which foods stay fresh the longest without a fridge.
17. See how preservatives change how fast bread gets moldy.
18. Test which plant-based antibiotics fight germs best.
19. Compare how different sugars make yeast bubble more.
20. Find out if hand sanitizer really kills more germs than soap.

21. Test which kitchen cleaners get rid of germs best.

22. See how warm or cold milk changes bacterial growth.

23. Compare which natural mouth rinses kill the most mouth germs.

24. Find out if probiotics really help your stomach work better.

25. See which foods have the most natural antioxidants.

26. Test how exercise changes heartbeats in different people.

27. Find out which sleep positions help you breathe best.

28. Compare how drinks change your energy all through the day.

29. See if meditation really lowers blood pressure.

30. Test which home remedies work best for headaches.

31. See how screen time changes how well teens sleep.

32. Compare which foods help memory the most.

33. Find out if certain colors help people pay attention.

34. See which study tricks help students remember things.

35. Test how quiet or busy places change people’s stress.

36. Compare which natural oils keep mosquitoes away best.

37. Find out which animal bedding stops bad smells best.

38. See if having pets really helps people feel less stressed.

39. Find out which bird seeds bring the most kinds of birds.

40. Test how pollution changes fish and water animals.

41. Compare which recycled pots are best for planting.

42. See if earthworms really make garden soil richer.

43. Find out how fertilizers change water pollution nearby.

44. Test which natural ways keep garden bugs away best.

45. Compare how weather changes local animal habits.
46. See if loud noises change how birds sing.
47. Find out which houseplants clean indoor air the most.
48. Test how street lights change insect activity.
49. Compare which compost methods break down scraps fastest.
50. Find out if organic farming really makes healthier vegetables.

Chemistry and Materials Science Projects

51. Test which home materials make the strongest natural glue.
52. Compare which metals rust fastest in different weather.
53. Find out if home-made soap cleans as well as store soaps.
54. See which natural dyes make fabric colors the brightest.
55. Test which kitchen acids clean pennies best.
56. Compare how different salts melt ice outside.
57. Find out which home batteries last the longest.
58. See how heat or cold changes plastic strength.
59. Test which natural insulators keep heat in best.
60. Compare which cleaners remove stains from clothes best.
61. Find out if baking soda really stops acids.
62. See which things conduct electricity better than water.
63. Test how pH changes how fast metal rusts.
64. Compare which natural preservatives keep food fresh longest.
65. Find out if vinegar really removes hard water spots.
66. See which home-made indicators show acids and bases.

67. Test how catalysts make reactions go faster.

68. Compare which filters clean dirty water best.

69. Find out if some crystals grow faster when together.

70. See which natural soaps mix oil and water best.

71. Test how heat changes crystal size and speed of growth.

72. Compare which antacids stop stomach acid best.

73. Find out if different sugars ferment at different speeds.

74. See which coagulants separate mixtures best.

75. Test how concentration changes reaction speed.

76. Compare which kitchen scraps make the best fertilizers.

77. Find out if mixing items makes glue bonds stronger.

78. See which materials block UV light best.

79. Test which liquids dissolve substances fastest.

80. Compare which surfactants make water spread out most.

81. Find out if home-made plastics stretch as far as store ones.

82. See which materials soak up oil spills best.

83. Test how catalysts change how fast hydrogen peroxide breaks down.

84. Compare which natural mordants help cloth hold dyes.

85. Find out if certain clays clean dirty water best.

86. See which acids can etch glass surfaces fastest.

87. Test how buffers keep pH steady over time.

88. Compare which enzymes break down proteins best.

89. Find out if minerals change water taste.

90. See which materials resist fire and heat damage best.

91. Test how alcohols change water’s surface tension.
92. Compare which natural chelators remove metal ions best.
93. Find out if home-made superconductors conduct better.
94. See which materials absorb sound waves best.
95. Test how oxidizers change how fast things burn.
96. Compare which reducers keep metals from rusting best.
97. Find out if mixes can make light-sensitive reactions.
98. See which materials change color with heat.
99. Test how stabilizers stop chemicals from breaking down.
100. Compare which natural mixtures stay mixed the longest.

Physics and Engineering Projects

101. Build a simple machine that lifts heavy things easily.
102. Test which bridge shapes hold the most weight best.
103. Make a water filter using only natural materials.
104. Build a solar oven that cooks food with sunlight.
105. Test which parachute shapes fall slowest in the air.
106. Make a simple motor with magnets and basic parts.
107. Build a catapult that throws items far and straight.
108. Test which materials keep ice frozen the longest.
109. Make a simple telescope that makes far things look close.
110. Build a wind turbine that makes electricity from wind.
111. Test which wheel shapes roll fastest down a hill.
112. Make a water lift that uses water to raise objects.
113. Build a tool that finds small ground vibrations.

114. Test which pendulum lengths keep the best time.

115. Make a periscope that lets you see around corners.

116. Build a simple magnet that picks up metal things.

117. Test which airplane shapes fly the farthest.

118. Make a water rocket that shoots highest into the sky.

119. Build a pulley system that makes lifting easier.

120. Test which surfaces make the most friction.

121. Make a barometer that finds changes in air pressure.

122. Build a rubber band car that travels the farthest.

123. Test which materials soak up impact best.

124. Make a compass that always points north.

125. Build a lever that makes force stronger.

126. Test which shapes move fastest through water.

127. Make a generator that makes electricity from movement.

128. Build a balloon car powered only by air.

129. Test which gear sets give the best advantage.

130. Make a thermometer that shows small temperature changes.

131. Build a marble run that shows gravity and speed.

132. Test which materials move heat best.

133. Make a speaker that makes sound louder.

134. Build a windmill that turns fastest in light wind.

135. Test which surfaces reflect light best.

136. Make a kaleidoscope that shows pretty patterns.

137. Build a tester that measures battery power.

138. Test which materials block electric waves best.
139. Make a gyroscope that spins to show balance.
140. Build a water wheel that makes power from flowing water.
141. Test which lens sets make the clearest view.
142. Make a tool that splits light into colors.
143. Build a sensor that measures weight changes.
144. Test which materials make the best sound when hit.
145. Make a tool that measures motion and speed.
146. Build a device that floats objects with magnets.
147. Test which shapes cut through air easiest.
148. Make a tool that measures tiny distance changes.
149. Build an engine that turns heat into movement.
150. Test which materials save and give back energy best.

Environmental Science and Earth Science Projects

151. Test how pollutants change pond water quality.
152. Measure air quality in city vs. country areas.
153. Study how acid rain hurts building materials.
154. Test which plants clean indoor air best.
155. Measure noise around your school and home.
156. Study how litter affects nearby animals.
157. Test ways to clean up oil spills well.
158. Measure soil quality in different spots in town.
159. Study how recycling cuts down on waste.

160. Test which clean energy works best where you live.
161. Measure pollution in nearby streams and rivers.
162. Study how cutting trees changes local weather.
163. Test home compost ways to cut food waste.
164. Measure carbon footprints of daily travel.
165. Study how cities change bird and animal life.
166. Test which natural mats block sound best.
167. Measure microplastics in local water.
168. Study how weather change alters plant bloom times.
169. Test ways to save water at home.
170. Measure light pollution on bugs and night life.
171. Study how farming changes soil erosion.
172. Test which plants grow in dirty soil best.
173. Measure radon levels in town buildings.
174. Study how road salt changes plant growth.
175. Test ways to cut home energy use.
176. Measure rain pH levels in your area.
177. Study how invasive plants change native ones.
178. Test which things break down fastest in soil.
179. Measure electric fields near gadgets.
180. Study how weather patterns change air quality.
181. Test ways to stop soil from washing away.
182. Measure heavy metals in town soil.
183. Study how seasons change water table levels.

184. Test which plants stop flooding best.
185. Measure dust levels inside and outside.
186. Study how activity changes groundwater quality.
187. Test ways to fix broken habitats naturally.
188. Measure ozone at different times each day.
189. Study how green roofs save building energy.
190. Test which natural filters clean drinking water best.
191. Measure temperature in city vs. farm areas.
192. Study how sprays affect helpful bugs.
193. Test ways to cut plastic use at home.
194. Measure wind in different outdoors spots.
195. Study how building changes animal paths.
196. Test which plants stop landslides best.
197. Measure salt in local water sources.
198. Study how drought changes plants and wildlife.
199. Test ways to fix acidic soil with natural methods.
200. Measure soil bits in streams after rain.

Computer Science and Technology Projects

201. Make an app that tracks daily water drinks.
202. Build a robot that follows light by itself.
203. Write a program that changes text into other languages.
204. Make a simple game using easy code rules.
205. Build a weather monitor with small sensors.

206. Write a program that solves math step by step.
207. Make a digital calendar that sends event reminders.
208. Build an alarm using sensors that hear motion.
209. Write a program that makes secure random passwords.
210. Make a basic calculator that adds, subtracts, and more.
211. Build a LED sign that scrolls messages.
212. Write a program that sorts photos by date.
213. Make a quiz game with multiple choice questions.
214. Build a plant temperature monitor with sensors.
215. Write a program that tracks exercise and fitness.
216. Make a drawing app with color pick options.
217. Build a home control system with switches.
218. Write a program that changes between units.
219. Make a digital diary that saves dated notes.
220. Build a burglar alarm that hears sound changes.
221. Write a program that makes math art and patterns.
222. Make an inventory app to track items you own.
223. Build a robot that steers away from obstacles.
224. Write a program that makes random story ideas.
225. Make a budget tracker for pocket money.
226. Build a garden water timer system.
227. Write a program that turns speech into text.
228. Make a music player with playlists.
229. Build a traffic light model with LEDs.

230. Write a program that tracks reading progress.
231. Make flashcards to study different subjects.
232. Build a drone that flies set paths.
233. Write a program that makes crossword puzzles.
234. Make a chat app to talk with friends.
235. Build a robot arm that picks up things.
236. Write a program that tracks air quality near you.
237. Make a recipe book app with shopping lists.
238. Build a smart doorbell with a camera and alerts.
239. Write a program that draws shapes with math.
240. Make an expense tracker for spending.
241. Build a plant growth monitor with a tracker.
242. Write a program that makes random workouts.
243. Make a pet care reminder with a schedule.
244. Build a maze-solving robot with sensors.
245. Write a program that tracks sleep and rest.
246. Make a language app to learn words.
247. Build a fish feeder that works on a timer.
248. Write a program that turns photos into art.
249. Make a habit tracker to build good routines.
250. Build a smart mirror that shows the weather.

Science Investigatory Project Ideas for College Students

1. Investigate the germ-fighting power of lab-made silver nanoparticles on bacteria that resist many drugs by using disc diffusion tests and minimum dose procedures.

2. Analyze how well titanium dioxide nanocomposites break down medicine pollutants in wastewater by using light absorbance measurements and liquid chromatography tests.

3. Examine how tiny plastic bits in sea mud build up in filter-feeding shellfish through careful sampling and microscope checks.

4. Develop plastic films that can break down, made from farm waste, and test their strength, water resistance, and how fast they decompose in set conditions.

5. Study how well lithium-ion battery parts with added graphene perform using voltage sweep tests, resistance checks, and charge-loss studies over many cycles.

6. Investigate how well CRISPR-Cas9 edits plant genes by measuring successful changes with DNA copying and gel separation methods.

7. Analyze how lower ocean pH affects coral growth rates by running pH-controlled tank tests and measuring calcium carbonate build-up.

8. Examine how genetically changed bacteria can clean heavy metals using light scanning tests and small animal safety checks.

9. Study how meditation changes brain links by using functional MRI scans and simple data models.

10. Investigate how well perovskite solar cells work at different temperatures and humidity by using power tests and stability runs.

11. Analyze changes in cancer cell DNA tags after adding natural compounds with DNA methylation sequencing and protein-tag tests.

12. Examine how volatile organic gases mix in city air using gas chromatography-mass spectrometry and reaction-rate models.

13. Study the strength and support of 3D-printed bone scaffolds by doing compression tests, checking pore sizes, and testing live bone cells.

14. Investigate how drugs release from nano-capsules by running lab release studies and using math models to track the process.

15. Analyze plant and animal species changes in new wetlands by doing full diversity surveys and community stats checks.

16. Examine how crystal structure affects gas storage in metal-organic frameworks with X-ray diffraction and gas uptake tests.

17. Study how proteins fold by running computer simulations and checking results with circular dichroism spectroscopy tests.

18. Investigate how modified algae strains perform photosynthesis for biofuel by measuring chlorophyll fluorescence and oil content.

19. Analyze how rare earth elements move through soil and plants using plasma mass spectrometry and multivariate statistics.

20. Examine how high-temperature ceramic materials conduct electricity without resistance using four-point probe and magnetic tests.

21. Study how marine microbes break down plastic by isolating strains, identifying them, and checking their enzyme activity.

22. Investigate deep learning network improvements for pattern finding by comparing different AI models and their performance scores.

23. Analyze tiny particles in the air and their effect on climate by measuring size distributions and running radiative transfer models.

24. Examine how medicinal plants make secondary metabolites by using metabolomics profiling and real-time PCR tests.

25. Study friction and wear of bio-inspired surface textures on machine parts by measuring friction coefficients and wear tests.

Science Project Ideas for Class 10

26. Compare how well natural antibiotics from kitchen spices stop bacterial growth using agar plates and clear-zone measurements.

27. Investigate how different fertilizer strengths affect bean seed germination and early growth over set time, recording height and leaf counts.

28. Analyze rainwater pH from various spots and match data with nearby pollution sources and weather factors.

29. Study how exercise level affects heart rate recovery time in students by measuring pulse before and after workouts.

30. Examine what light intensity and temperature do to oxygen bubbles in aquatic plants to see photosynthesis rate.

31. Investigate home-made water filters made from sand, charcoal, and pebbles by testing water clarity and purity after filtering.

32. Compare vitamin C in fresh fruits versus store juices using iodine titration and discuss nutrition differences.

33. Study mold growth on bread, cheese, and fruit under different humidity and temperature by noting colony spread and color changes.

34. Analyze how different salt and sugar solutions conduct electricity using simple circuit meters and record current flow.

35. Examine what speeds up rust on iron by leaving samples in saltwater, fresh water, and air, then measuring corrosion depth.

36. Investigate plant extracts (cabbage juice, turmeric) as acid–base indicators by watching color shifts and measuring pH.

37. Study soil types (sand, clay, loam) for water retention by pouring set water volumes and timing drainage.

38. Compare thermal insulation of cotton, foam, and bubble wrap by tracking temperature change inside boxes over time.

39. Analyze how sound frequency (low, medium, high) affects plant height by playing tones and measuring growth.

40. Examine salt solution crystal shapes by cooling fast and slow and documenting patterns under a microscope.

41. Investigate how salt, sugar, and vinegar preservation slow spoilage by tracking bacterial growth on food over days.

42. Study how pendulum length affects swing time by timing oscillations for different string lengths and graphing results.

43. Compare liquid densities (water, oil, syrup) via displacement tests and calculate specific gravity from mass and volume.

44. Examine lever, pulley, and ramp efficiency by measuring force and distance moved for each simple machine.

45. Investigate magnet strength on different metals by measuring how many paper clips each metal piece picks up.

46. Study how container opening size changes water evaporation rate by measuring volume lost over time in identical settings.

47. Analyze how red, blue, and green light affect leaf growth by using colored filters and measuring length and chlorophyll.

48. Compare kitchen cleaners on bacteria by swabbing surfaces, applying cleaners, and measuring clear zones on agar plates.

49. Examine how barometric pressure readings link to weather changes by tracking a barometer and noting sky conditions.

50. Investigate acids and bases in soaps, sodas, and cleaners by testing with litmus paper and recording pH values.

National Winning Science Fair Projects

51. Develop a new sensor to spot Alzheimer's markers early using gold nanoparticles and surface plasmon resonance, then test with patient samples.

52. Engineer drought-resistant crops by using CRISPR to edit stress-response genes, then field-test yield and growth under low water.

53. Create an AI program that predicts natural disasters by analyzing satellite images with machine learning and comparing to past events.

54. Design a microbial fuel cell that cleans wastewater and makes electricity at once, then build a scaled-up prototype to show results.

55. Investigate new cancer immunotherapy by engineering T-cells for better targeting and testing them in lab and animal models.

56. Develop biodegradable plastics from sea waste that match strength needs and break down faster in ocean conditions.

57. Engineer smart contact lenses to track glucose levels in diabetics by embedding tiny electronics and wireless transmitters.

58. Create an autonomous underwater vehicle with sensors for real-time marine monitoring and data analysis.

59. Investigate ways to improve quantum dot solar cells by adding surface passivation layers and measuring power gains.

60. Develop personalized medicine methods using patient genetic data to set optimal drug doses and cut side effects.

61. Engineer self-healing concrete by adding bacterial spores that grow and fill cracks, then test durability and cost.

62. Create prosthetic limbs with brain-controlled interfaces for natural movement and sensory feedback in amputee trials.

63. Investigate algae systems to capture carbon from air, design scalable bioreactors, and measure uptake rates.

64. Develop simple paper-based microfluidic tests for fast disease detection, then trial them in low-resource clinics.

65. Engineer smart fabrics with built-in sensors for health monitoring and emergency alerts in wearable tech.

66. Investigate focused ultrasound methods to carry drugs across the blood-brain barrier for brain disorder treatments.

67. Develop sustainable aviation fuel from farm waste using catalytic processes, then test engine performance and emissions.

68. Create robots for cleaning hazardous sites with advanced navigation and remote controls, then demo in mock spills.

69. Investigate gene therapy for inherited blindness by delivering genes with viral carriers and testing sight improvement in animals.

70. Engineer solar-powered water purification units for remote areas using membrane distillation and community trials.

71. Develop drone-based precision farming systems with AI to map crop health and guide fertilizer use.

72. Investigate new antibiotics from extreme-living microbes by growing cultures and testing against drug-resistant bacteria.

73. Create battery recycling methods for lithium-ion packs that recover most materials and lower environmental impact.

74. Engineer lab-grown tissue on 3D-printed scaffolds to build bioartificial organs and test function in lab settings.

75. Investigate how spreading silicate rock over land can speed up natural carbon capture and measure changes in soil chemistry.