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| Sub project | **Lesson title** | **Resources** |
| Biological Sciences | C.elegans project lessons | Lesson planPowerpointWork bookC.elegansMicroscopesEthanol solutionsPipettesPoster template. |
| Learning objectivesLesson 1To have decided on the question my investigation will answer.To have come up with a hypothesisTo have identified my variables.To have written my method and stated how I will make this a fair test.Lesson 2To carry out practical work in a methodical and well organised mannerTo obtain and record accurate and reliable resultsLesson 3To draw a graph that appropriately displays results (using excel if applicable).To describe results and explain what they show.Identify any anomalies in results and suggest reasons for these.Lesson 4Understand how to represent your work in a visually appealing and interesting manner. |
| Differentiation? * Less able pupils may just be shown a method and asked to identify the variables or decide how they might make it a fair test. More able pupils may be given two lessons to plan a really detailed investigation.
* More able pupils could be left to plan independently while teacher gives individual support/ check groups on the right track. Less able groups taken through each step.
* For groups with less developed practical skills, the investigation could be done as a class (each group collecting different set of data) and then collated at the end of the lesson.
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| Activity | **Timing** |
| **Lesson 1**Starter: introduce pupils to C.elegans (they could look at it through a microscope) and some of the basic methodology they may not have come across (how to handle it, how to add substances to its environment etc)With more able groups discuss the possibilities of things they could investigate.Main: pupils plan what question they will answer, identify variable, hypothesis and write method using booklet and power point slide.Plenary: pupils share ideas with another group/ whole class and discuss how they will record their results. **Lesson 2 (pupils carry on planning or…)**Starter: Ask pupils to remind you what they were planning last lesson. Ensure everybody has somewhere to record results.Main: pupils carry out practical. Teacher could take photographs during practical for pupils to use on posters if desired.Plenary: make sure each group member has results recorded pupils share their findings with another group/ whole class.**Lesson 3 (pupils could use computers so that work can just be cut and paste into posters next lesson).**Starter: Ask pupils to look at their results and ask them what they should do with them now. Identify any anomalies and discuss types of graph to help them decide which one is most appropriate.Main: pupils draw their graph and discuss and evaluate their results using booklet and power point slide.Plenary: pupils share one thing they could do differently to improve their results.**Lesson 4 (computer access required)**Starter: remind pupils why researchers go to conferences and produce posters. Talk them through the template.Main: pupils use scientific poster template to produce their posters. If competent pupils could re do their graphs in excel.Plenary: Share their poster with one other groupCould be finished for homework. | 10mins40mins 10mins5mins45mins10mins10mins45mins5mins5mins45mins10mins |