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| Procedure  "GETTING IT JUST RIGHT"  1) Obtain all needed materials listed  2) Pick 3 locations where the environment and exposure to sunlight are equal. Make sure there are no lurking variables such as extra water from sprinklers, shade, and amount of bugs.  3) Make sure the pots are spaced evenly and far enough from each other to not be exposed to the frequencies of the other music. A good spacing is about 15 feet between each pot.  4) Fill the three pots with the manure blend up to 6 inches from the bottom. Stick a ruler perpendicular to the pot base and have partner fill pot until the soil level reaches 6 inches. Then remove the ruler and patch up any hole in soil made by it.  5) Make 5 marking that are all 5 cm off from the walls of the pot and 8 cm between each hole.  6) Put tabs on those 5 spots and make holes 5 centimeters deep at each spot. Place 6 cherry belle radish seeds in the holes and cover up firmly with soil.  "TIME TO USE OUR GREEN THUMBS AND OUTLETS":  7) After planting, put 4 cups of tap water in the plant feeder and dispense evenly to first pot. Repeat this step for other two pots.  8) Check on plants daily until first sprout appears from any pot.  9) While waiting for sprouts to appear, begin the set up of music  a) Choose two songs. One with higher frequencies such as rock and the other with lower frequencies such as classical. Using the Digital Oscilloscope, determine which songs have high and low frequencies. Have them on two separate CD�s.  b) Assign each pot to a music type and the control will grow under silence (or no influence from music).  10) At first sprout, set up two speakers and compact disc players at each pot (except the control pot)  a) Place one wooden stick 3.75 inches from the left rim side of the pot. Place the other stick 3.75 inches from the right rim side of the pot. The two sticks should be 6 inches apart from one another. The stick itself would be one inch thick.  b) Place the speaker across the two boards with the speakers facing down. The two speakers would be 3 inches apart from each other.  The compact disc player would be set on the ground. Do this for both group one and group two.  c) Set the wrist watch timer for two hours  d) Start the music (rock and classical) both at the same time and put the two songs on repeat mode.  e) Set the timer for two hours.  f) After two hours stop the music and remove the speakers so as to not block the plant from sunlight exposure until the next music exposure.  11) Water the plants every other day (Monday, Wednesday, Friday, Sunday��), repeating step 7.  12) The days following the watering days (i.e. if the plant was watered on Monday, this step should be done on Tuesday), repeat steps 10.a. through 10.g.  "GETTING ALONG JUST FINE, I HOPE?":  13) After three weeks, or 21 days, it is time to pull out a few radishes for a developmental "check up". Do this in order to check on the plants development and to make certain the plants are growing strongly. (If the plants are not developing, we strongly urge you to start investigate the causes for the plant�s developmental halt and start again using new procedures).  14) Pull out one of the "batches" (a cluster of 6 growing radishes planted in one of the 6 holes) from Group 1, Group 2, and the Control Group.  15) Using the mini shovel to dig, pull out the clusters carefully by digging out the surrounding soil also. Make sure not to pull off any leaves or disturbing the other batches. Cut a 4 cm radial circle around the plant and 10 cm deep.  16) Gently remove any loose soil surrounding the roots.  17) Fill the pie pan with water and carefully wash off any excess soil attached to the roots in it.  18) Slowly and carefully separate the roots from each other, and you should have six different root systems from the six seeds initially planted.  "TAKING DOWN THE DATA":  19) Straighten the roots as much as possible without tearing them. Measure the length of the roots and record results in the data table.  20) Count the number of leaves per radish plant and record the results.  21) Measure the length and width of the first type of leaf. Length should be from the beginning of the leaf to the topmost tip of the leaf. The width should be taken from the widest part of the leaf. Record the data.  20) Measure the length and width of the second type of leaf. Lengths should be from the beginning of the leaf to where the point at which the top of the leaf concaves. The width should also be taken from the widest part of the leaf. Record the results.  22) After all the measurements have been made, disperse of those recorded plants properly. There is no need to keep them anymore.  "�..CONTINUING ON�.  23) Continue to care and experiment on the plants by repeating steps 11 and 12.  "HARVEST TIME":  24) After 5 weeks , or 35 days, it is time to pull out the rest of the radishes.  25) Repeat Steps 14-22 until all the batches from all three groups has been pulled and recorded.  26) Take your findings and time to analyze�  ([Back to Materials](http://docs.google.com/procedure.html))    [[Home](http://docs.google.com/home.html)][[Introduction](http://docs.google.com/introduction.html)][[Hypothesis](http://docs.google.com/hypothesis.html)][[Procedure](http://docs.google.com/procedure.html)][[Data](http://docs.google.com/data.html)][[Conclusions](http://docs.google.com/conclusions.html)][[Bilio/Links](http://docs.google.com/biblio.html)]  [[2001 Projects](http://docs.google.com/index.html)][[2000 Projects](http://docs.google.com/AP2000/index.html)][[1999 Projects](http://docs.google.com/AP99/index.html)][[1998 Projects](http://docs.google.com/AP98/index.html)] |