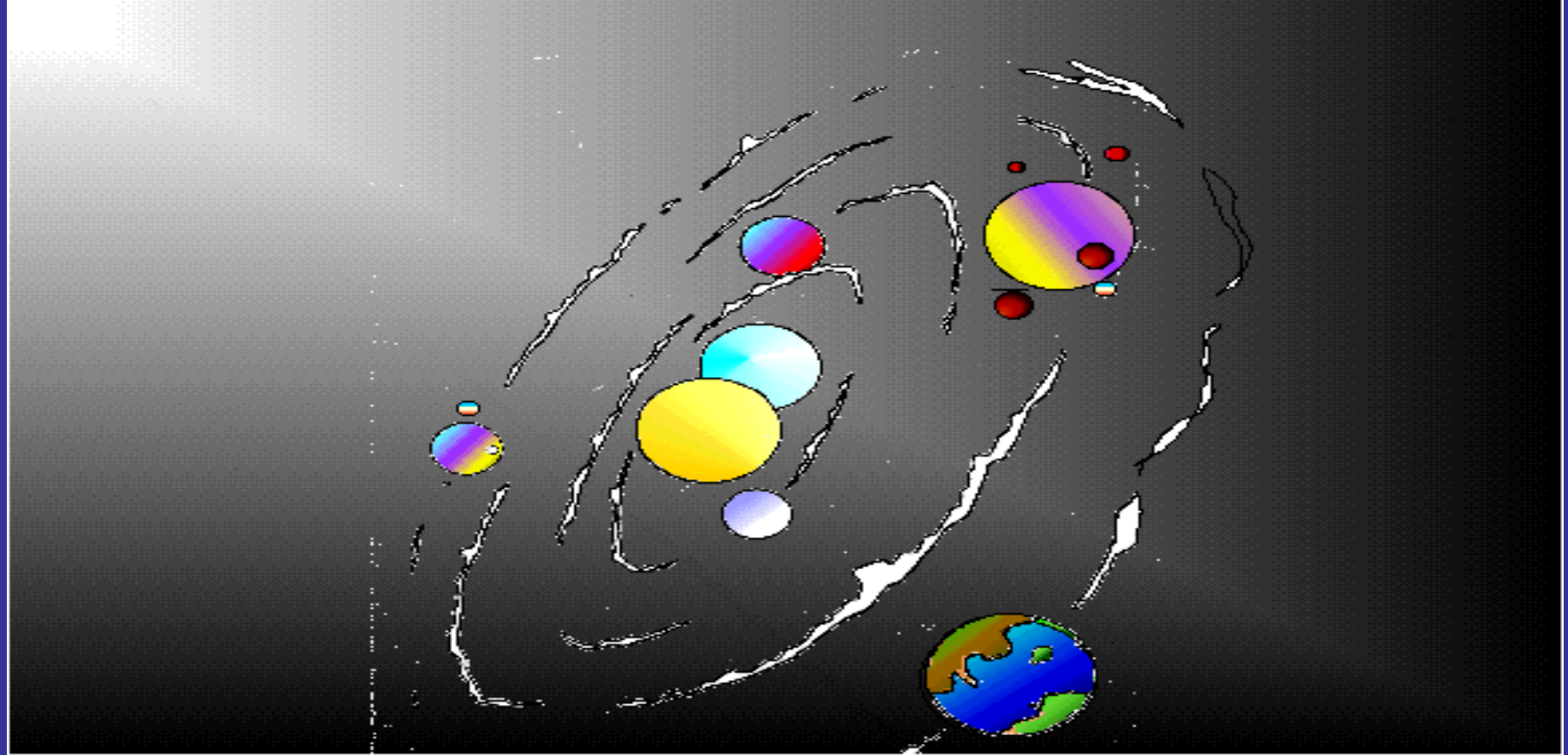


*Bebbledwark*

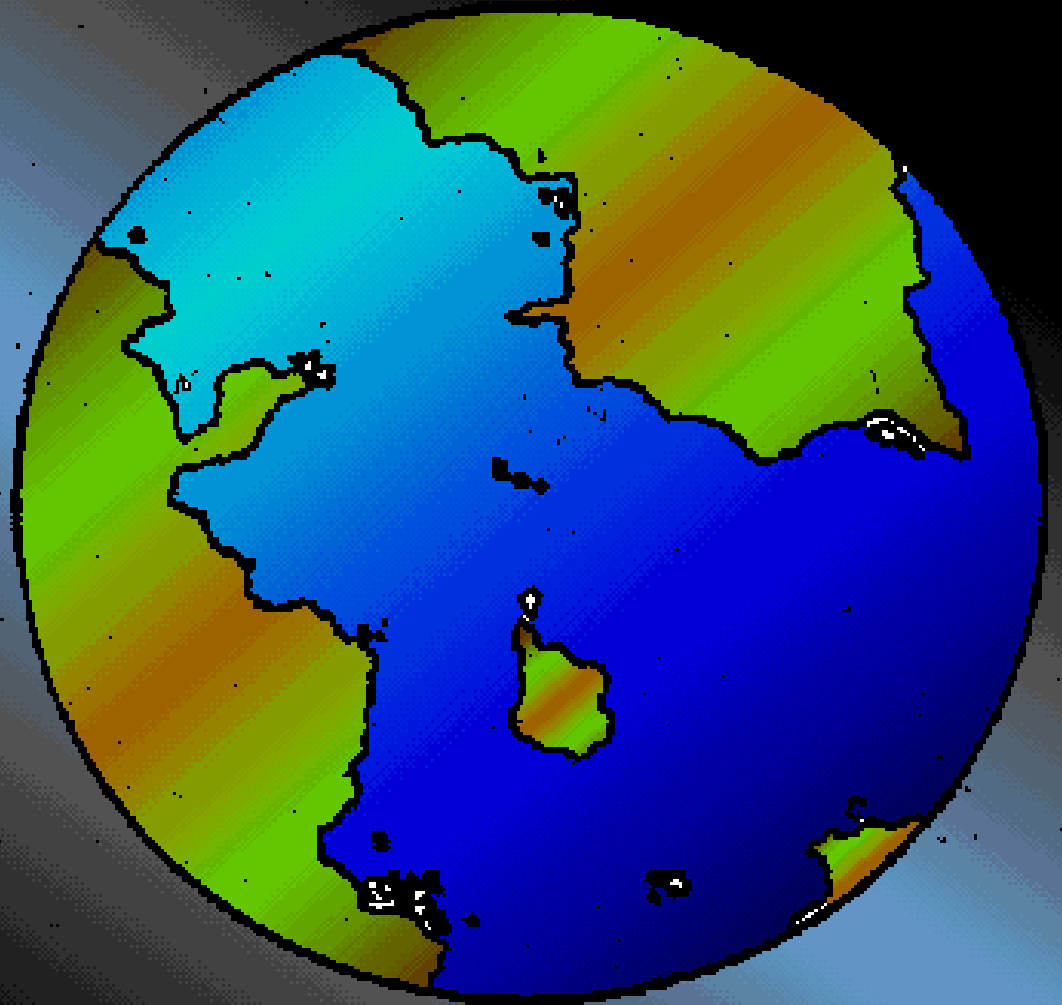
*World*

*A Simulation of Evolution*

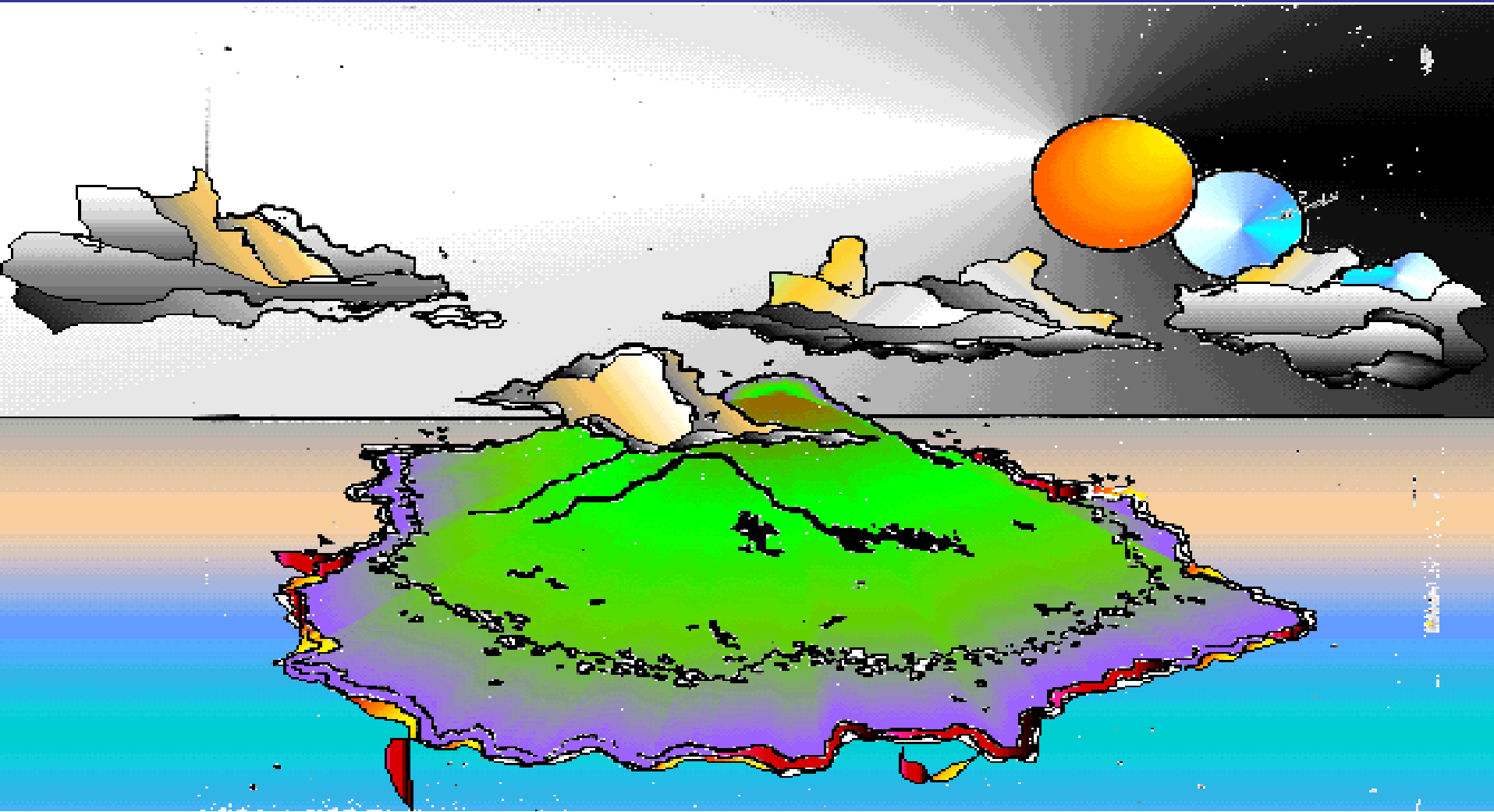




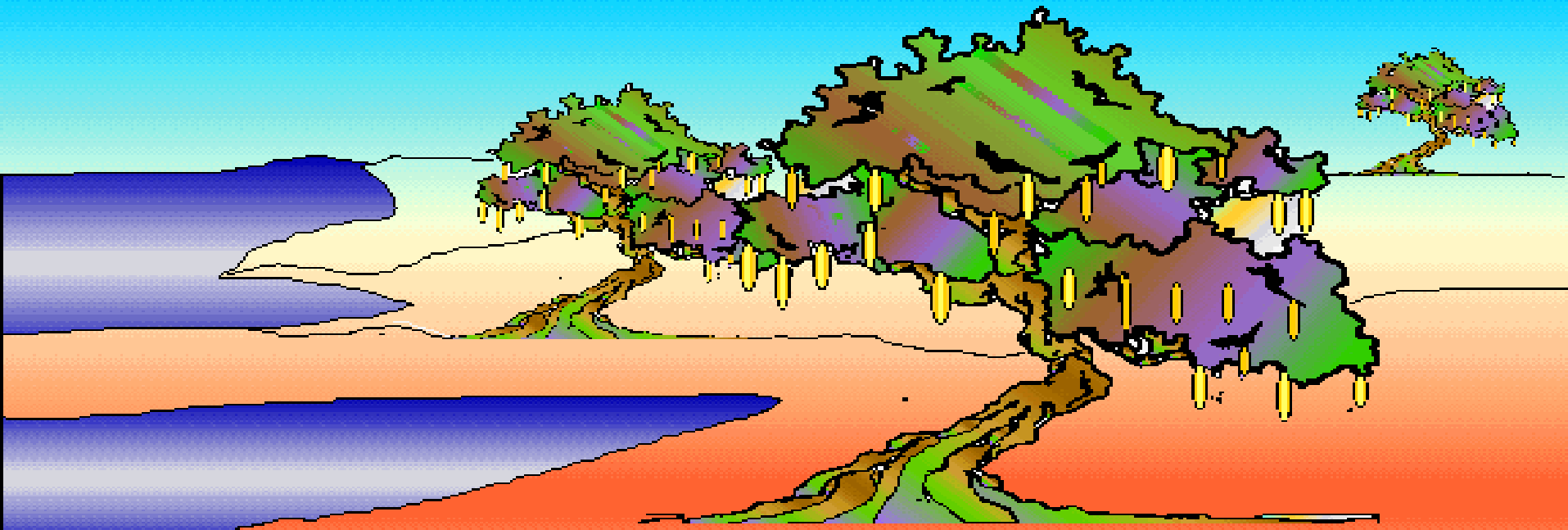
In a faraway galaxy there is a unique solar system, composed of five planets and a binary star center. The binary system is composed of a "sol" type sun and an extremely bright blue dwarf. The only "LIFE FORM" planet in the system is in the fourth orbit out from the binaries. The name of the planet is BEBBLEDWARKWORLD.



From five hundred kilometers out, Bebbledwark World looks much like many other planets, including Earth.



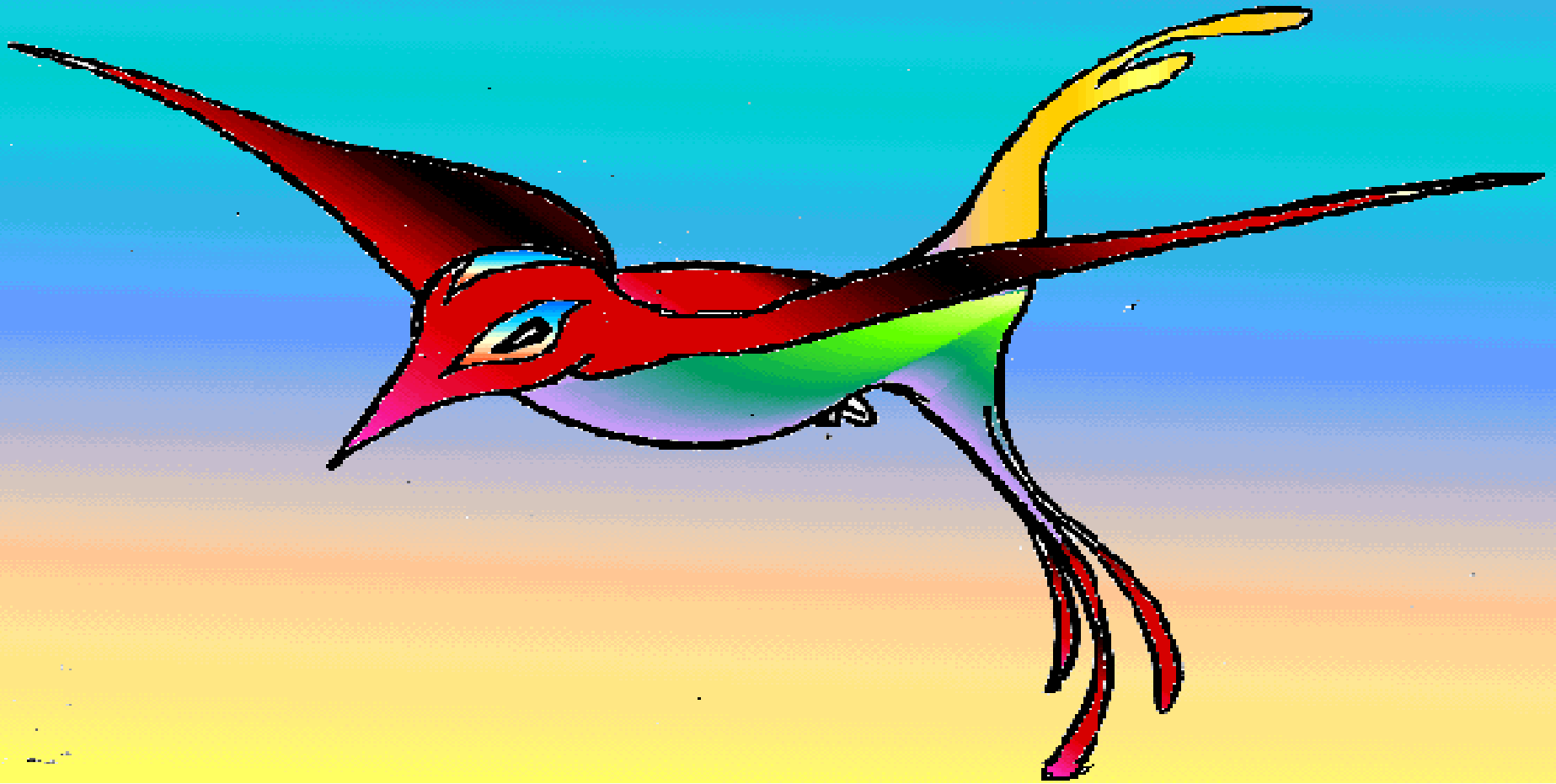
This world is named after the incredibly nutritious bebbledwark fruit trees *Bebbledwarkus dontyaeatus*, which flourish on the planet. The only animal-like organisms that survive on the planet are the super fast flying *Swiftus supersonicus*. If you look closely it is possible to see a few of these bird-like creatures flying above the forest.



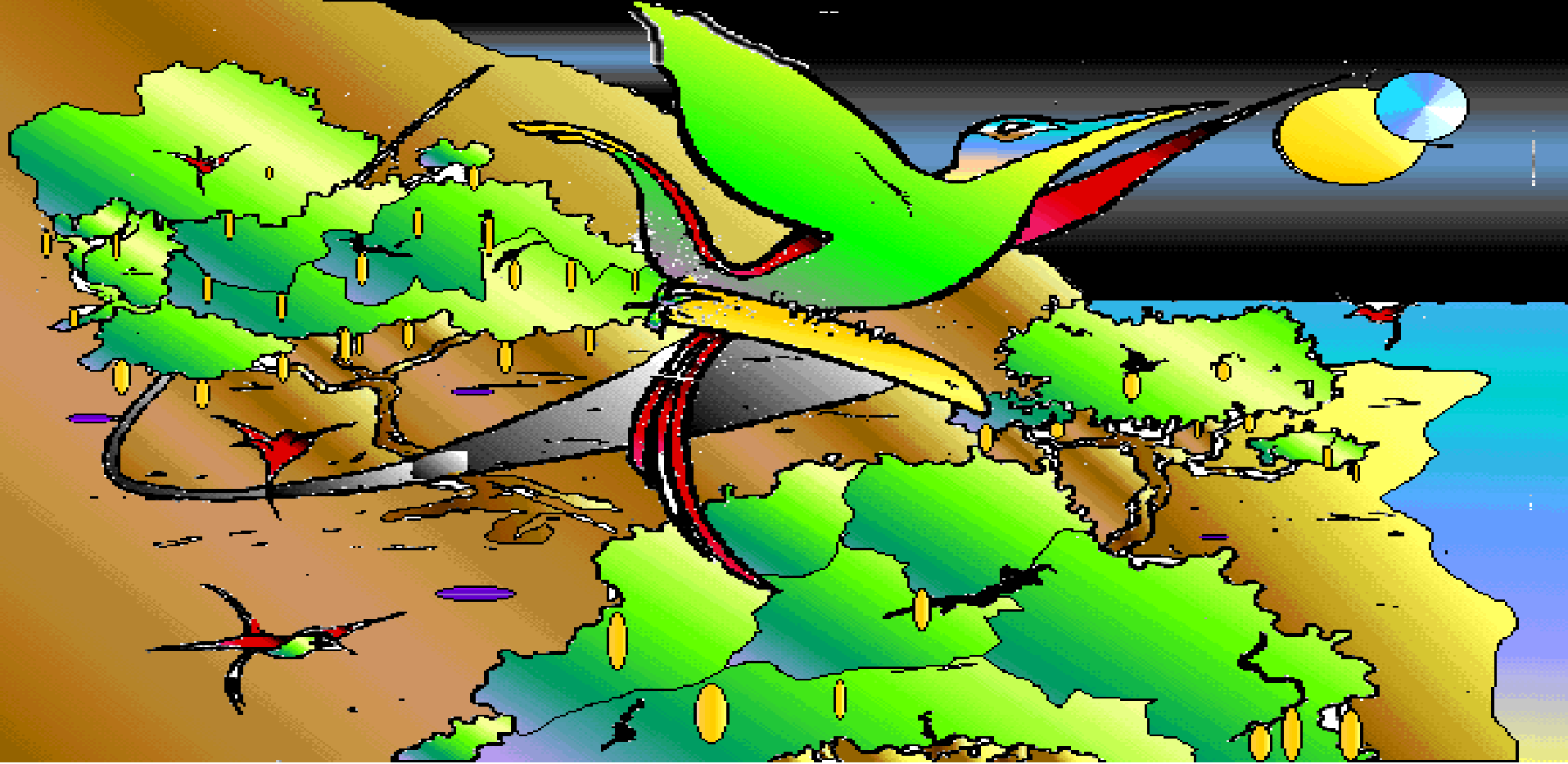
The binary star system periodically becomes unstable and bathes the planets with moderately harmful radiation. The only animal-like organisms which survive on BebbledwarkWorld are these singular swifts, *Swiftus supersonicus*. The *Bebbledwarkus dontyaeatus* fruit imparts a potent antidote to the radiation which periodically bathes the planet. These bird-like organisms, over thousands of generations, have become extremely well adapted to catching the unique nutritious bebbledwark fruit in mid-flight.



The *Bebbledwarkus donyaeatus* trees grow fruit all year around. The fruit varies in length. The fruit ripens, turns orange, and within an hour randomly falls from the tree. The bird will hover long periods of time above a ripe fruit. When the fruit falls, the bird will screech into a power dive, reach supersonic speeds and catch the fruit before it touches the ground.

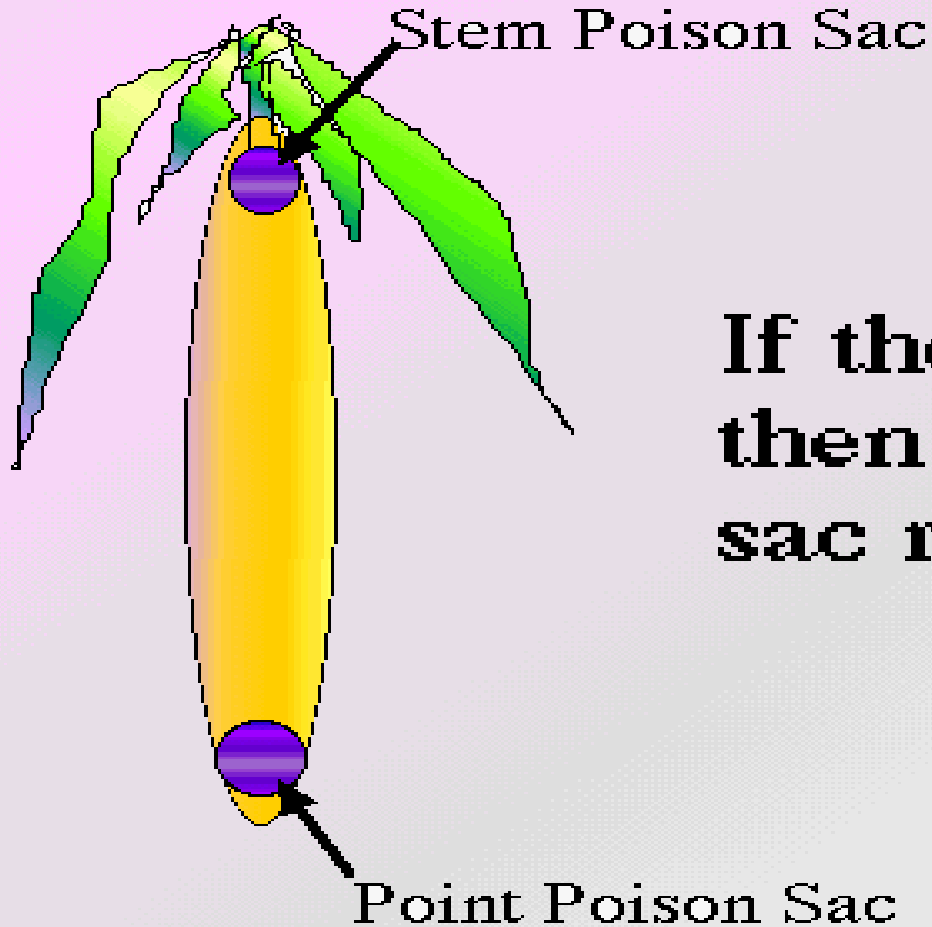


It takes a unique bird to exhibit such complex behavior. The diagram shows the *Swiftus supersonicus*. As one can see it has powerful airfoils, razor sharp beak and powerful legs which absorb the shock of catching the fruit in mid air (Tucked into the flying position as shown). It is rumored that these organisms play an important role in the little understood fertilization process of the BebbleFlowers. All in all, this is a very singular group of swiftus.



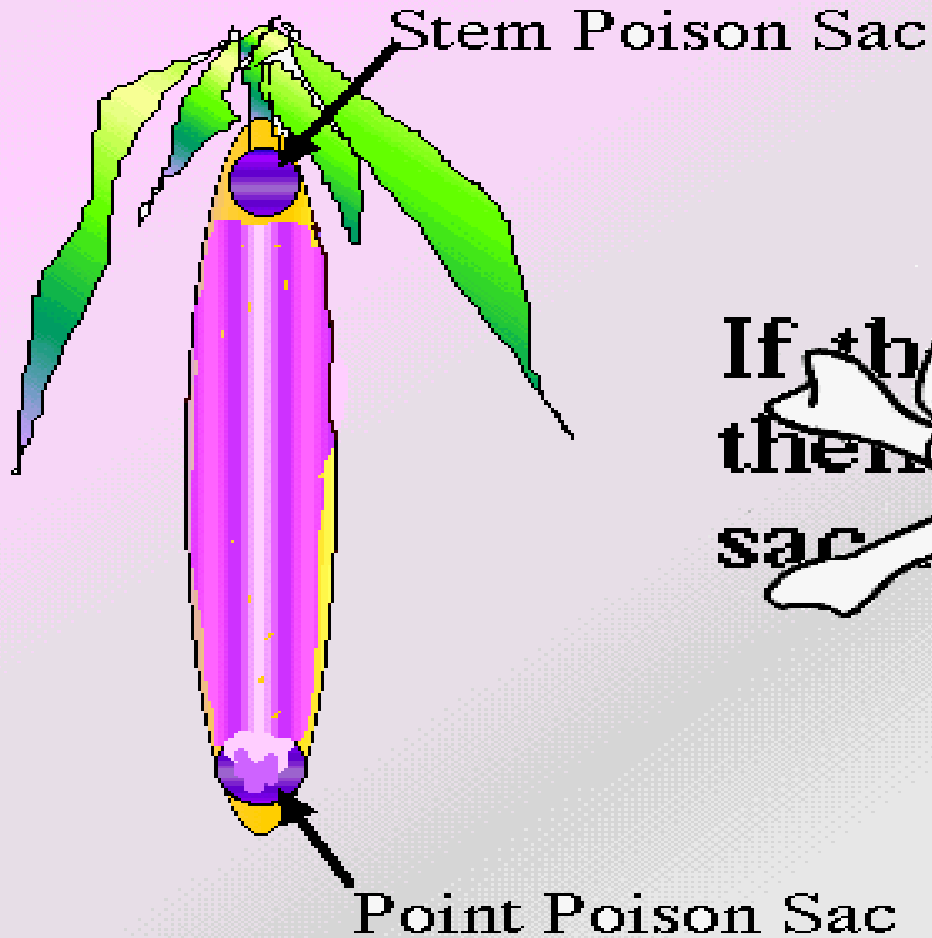
Here is the *Swiftus supersonicus* doing what it does best, harvesting fruit.

Why do these organisms exhibit this unique type of behavior? Why is such behavior necessary? Why not just eat the fruit on the tree or off the ground?




If the fruit falls  
then the point  
sac ruptures!

The fruit of the Bebbledwark tree is unique. The fruit structure can be seen in this diagram, and one notices that the orange section takes up the bulk of the fruit's mass. This section is the nutritious portion of the fruit which normally will feed the seed embryo until the seedling becomes established. The purple sacs on both ends of the fruit are filled with a highly toxic poison. Both of these sacs have **VERY DELICATE** membranes. If the fruit falls to the ground, the sac in the point of the fruit will rupture and the contents will diffuse into the edible fruit causing it to become extremely toxic to any organism that eats it... but not to the plant itself. In fact, the poison is actually an activator for germination.

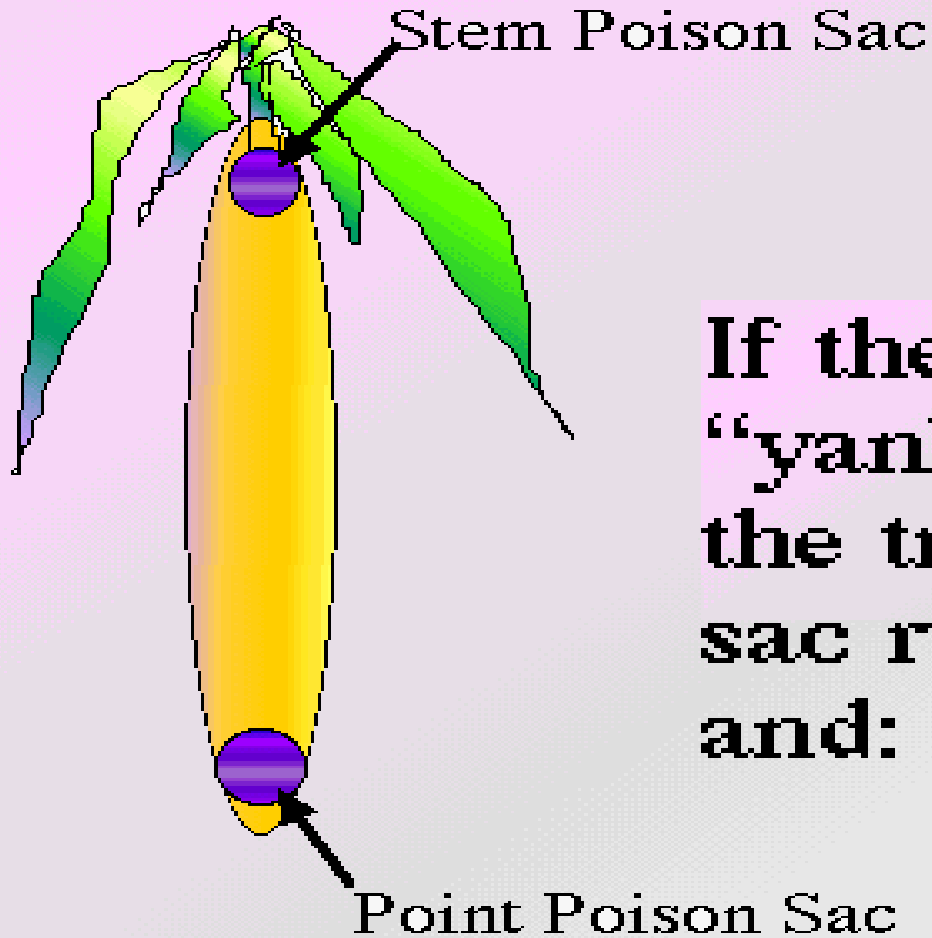


If the fruit falls  
then the point  
sac ruptures!



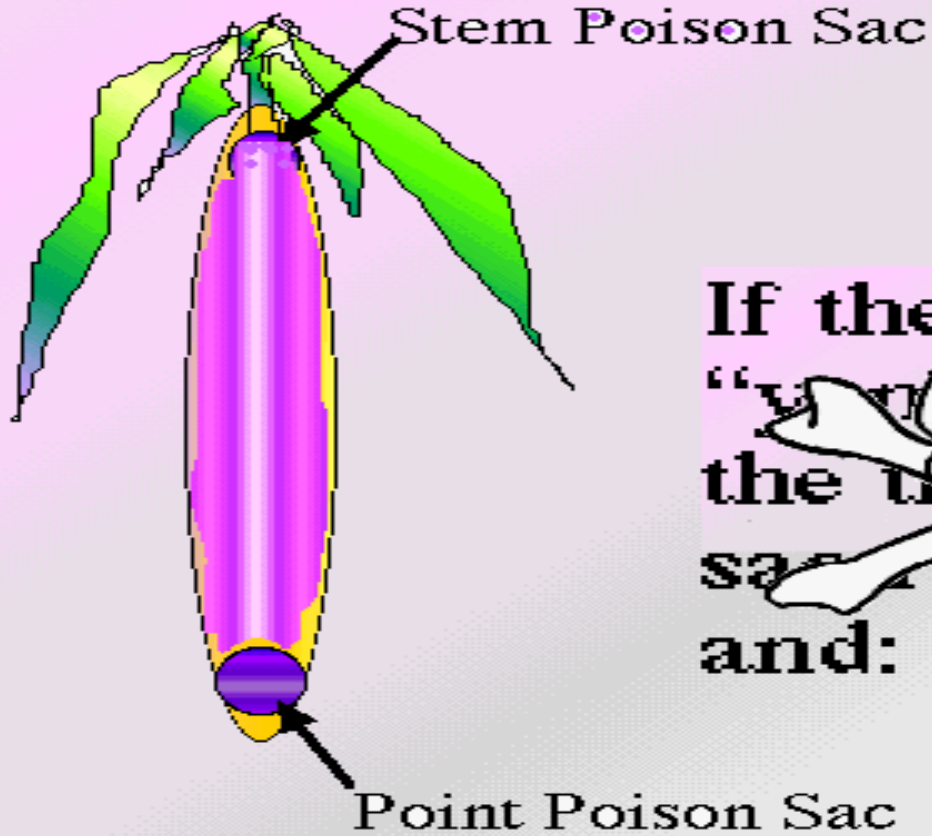
A black and white skull and crossbones symbol is positioned behind the text, indicating that the fruit is highly toxic.

Here you can observe what happens when the fruit falls from the bebbledwark tree. The lower poison sac ruptures and the fruit becomes horribly toxic.



If the fruit is  
“yanked” from  
the tree the stem  
sac ruptures  
and:

Here you can see the Bebbledwark Fruit as it normally hangs from the tree. In the next screen you will see what happens when the fruit is harvested by plucking it from the tree.



If the fruit is  
“~~cut~~ from  
the ~~tree~~ stem  
sacruptu  
and:



The fruit that is taken from the tree breaks the STEM poison sac.

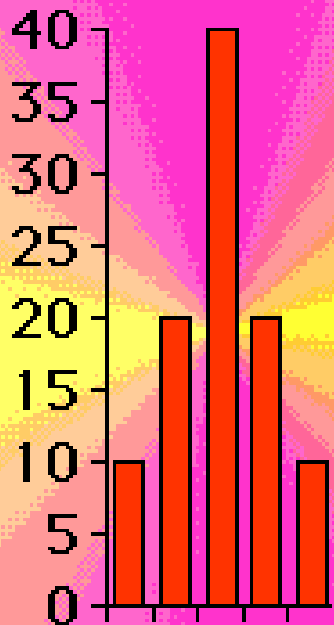
Therefore, the only safe time to harvest the fruit is after it has fallen naturally from the tree and before it hits the ground.



The swifts are adept at catching the fruit by flying and grabbing the fruit in mid-air. The fruit missed by the swifts hits the ground and the seed germinates to produce the next generation of trees.

## MEASUREMENT OF FRUIT.

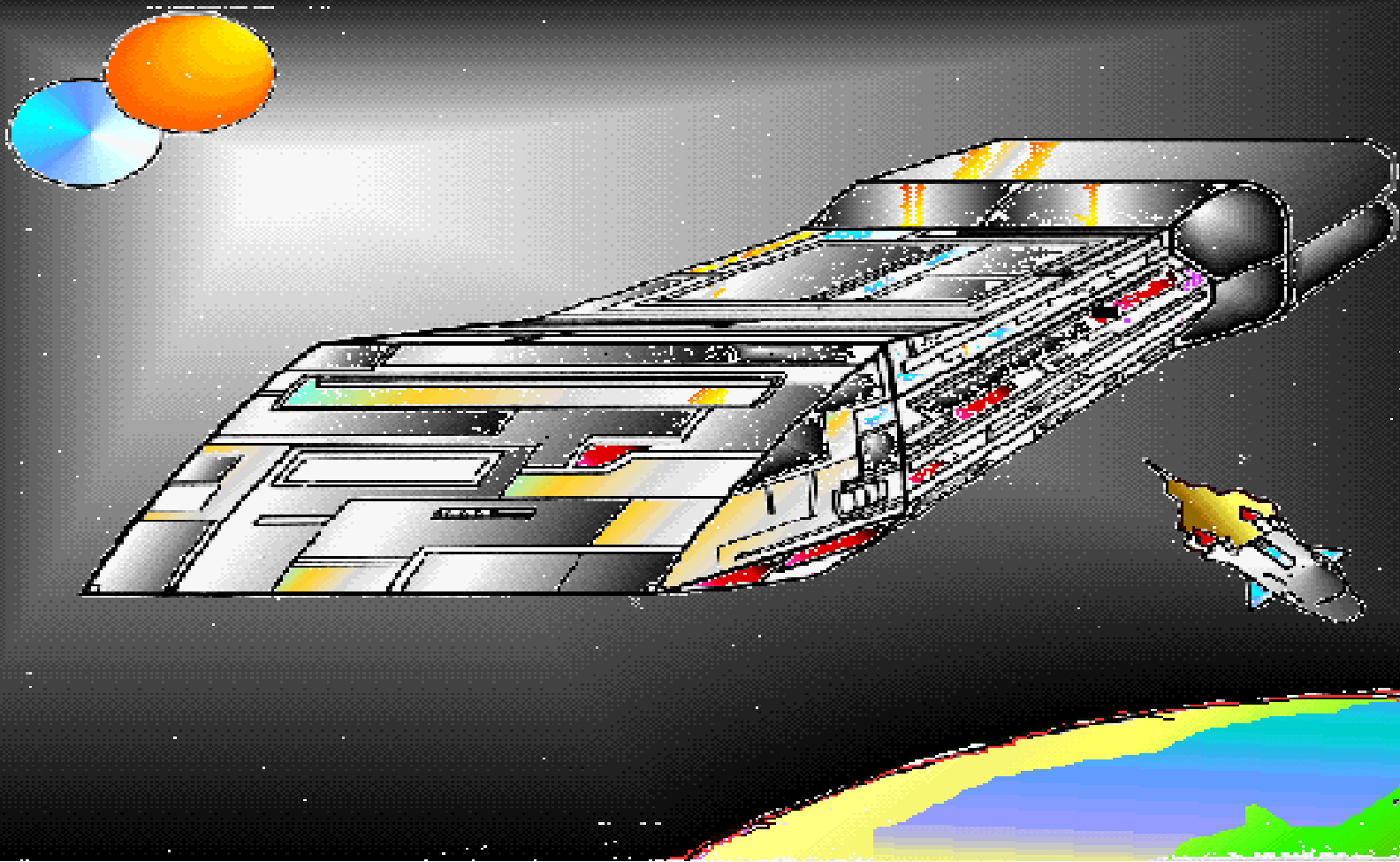
The fruit varies in length from longest-26cm. to shortest-9cm. The most common length found in the forest is 16cm. The length of the fruit varies according to a standard bell shaped curve. The interaction of the birds and trees is well established as is often the case in extended relationships. Please fill in the first graph on your worksheet.



There are 10% fives (longest), 20% fours, 40% threes (middle size), 20% twos and 10% ones (smallest size).

(The "wooden" fruit should be shown to the class at this point in the simulation.)

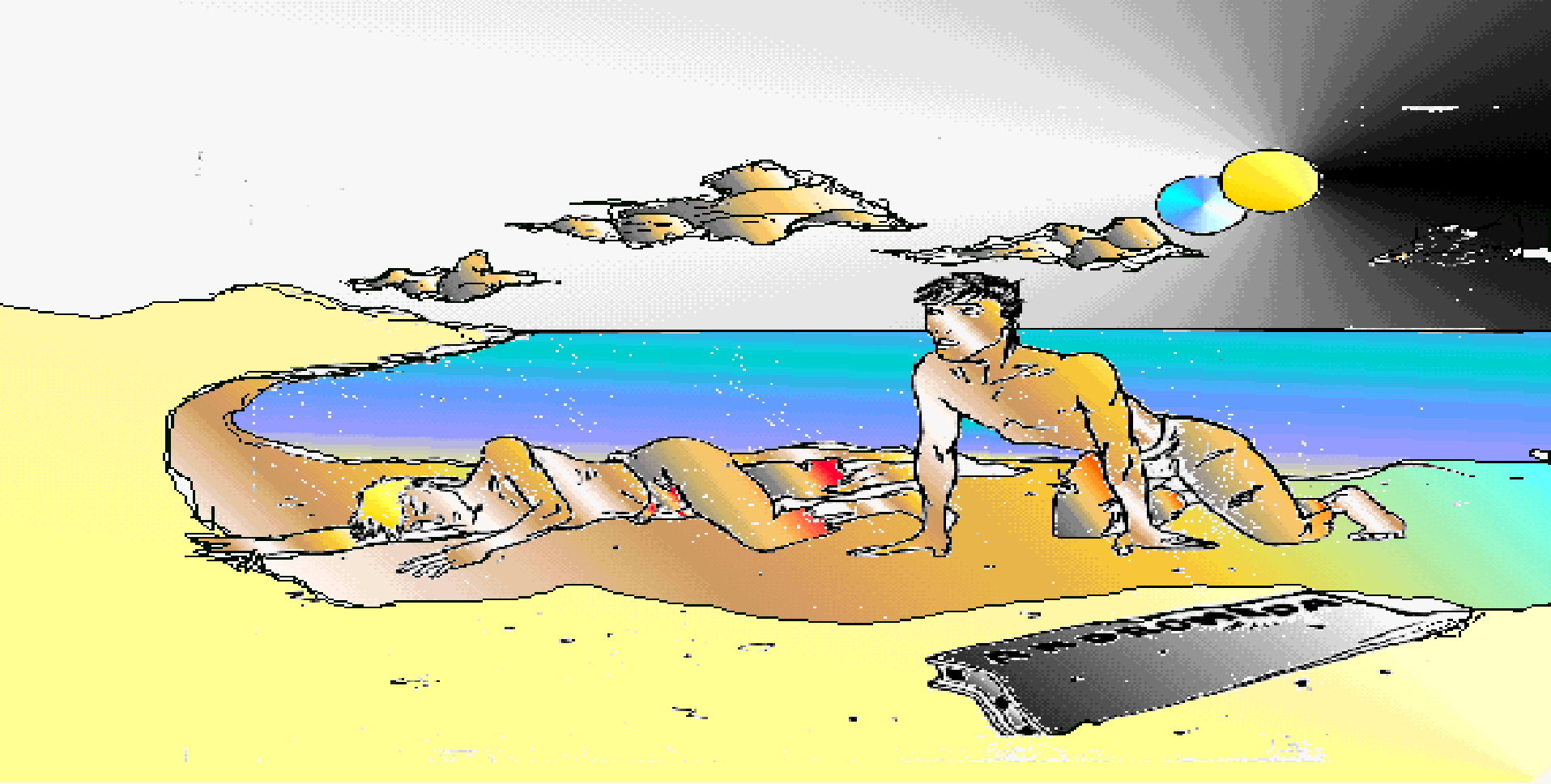
The trait for fruit length is polygenic.... that is there are more than one pair of genes controlling its length. There are actually two genes each on two different sets of chromosomes which control the length of the fruit. All dominant genes LL LL makes the #5 long fruit, LLLl makes the #4 fruit, LLll makes the #3 fruit, LlLl makes the #2 fruit, and llll makes the #1 fruit.



Nearby, just after a de-string from hyperspace, the deep space research cruiser, *Andromeda*, experienced extreme mechanical dysfunction. Just as the ship's star drive unit blew itself into a mixture of quarks, electrons, muons, taus, three kinds of neutrinos and the antiparticles of each, the fifty-five member crew was able to escape in the life shuttle pod. This pod crashed into Bebbledwarkworld's ocean and promptly sank taking ten brave crew with it.



There is no sound associated with this tremendous explosion. There is no atmosphere in space to carry sound waves!



The remaining members managed to cling to floating space wreckage and stayed afloat for four days. Finally this wretched remainder of a once proud vessel and crew was lucky enough to be washed ashore on a small island in the vast Bebbledwarkworld ocean.



After exploring the island the crew members observed that the only food to eat on the island was the Bebblefruit.



Unfortunately several hungry members of the crew met a rather wretched end. So much for the experimental method!



After several hungry days, the science officer carefully observed the swiftus, and after following the bird to a high place discovered this animal's unusual behavior. He observed her gently lay the orange fruit on its side and with her razor sharp beak carefully cut the ends off. This was the **KEY** to harvesting the fruit! **THE FRUIT HAD TO BE CAUGHT WHILE FALLING NATURALLY FROM THE TREE TO THE GROUND.**



This process, obtaining food energy from the madly careening suns, meant survival to the small tribe. They call themselves Catchecans. Here you see a Catchecan male, with his arm propped up on his trusty "catching stick", doing what must be done, waiting patiently for a Bebbledfruit to fall.