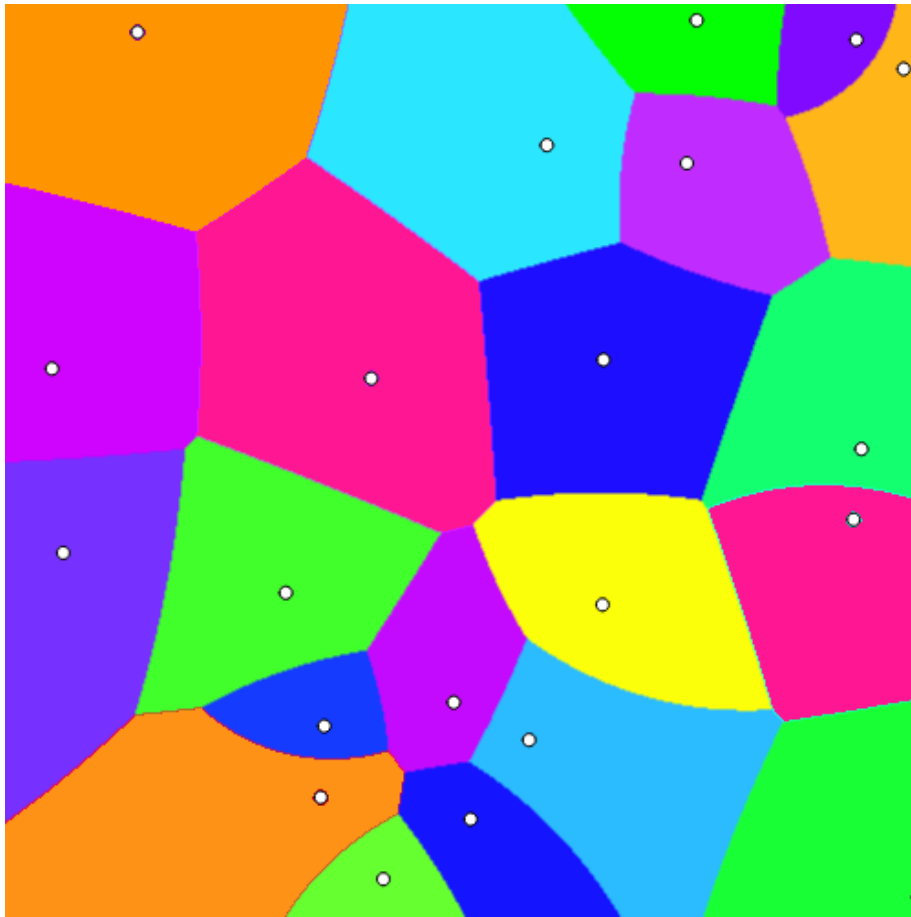


Voronoi Diagrams

In the field of discrete geometry, a Voronoi diagram is one instance of the amazing structure of point sets (finite sets of points on the plane). The Voronoi region of a point in a point set is, roughly speaking, the region that is closer to that point than the other points.

They look like this:

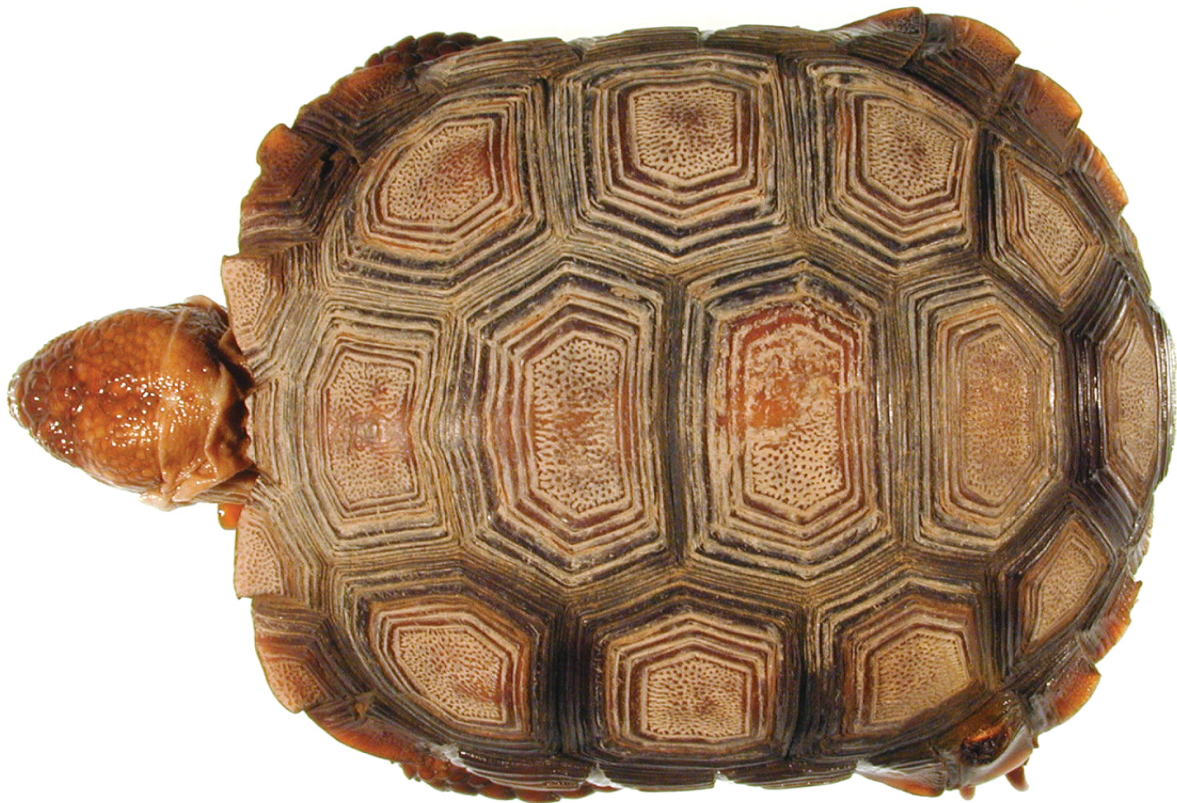


Voronoi Diagrams show up everywhere in nature. Many natural phenomena give rise to them. Among these is the shell of a tortoise!

Tortoise Shells!

Tortoise shells are the shells of tortoises, which is a type of animal. I'm sure you've heard of them :)

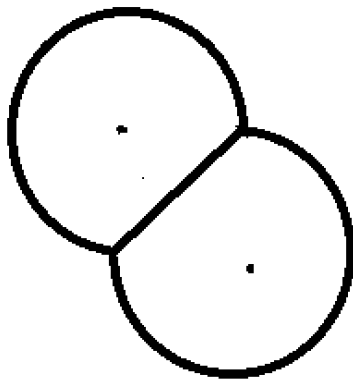
What you might not have known is that the tortoise shell is yet another example of a Voronoi diagram!! Just have a look!



This art project will likely help you to get an idea of why tortoise shells look the way they do. In fact, it may help to get an idea of how Voronoi diagrams are so common in nature.

Here are the instructions:

1. Select any number of colors you like. I chose orange and blue
2. Around each point, draw a small circle in the first of your chosen colors. Make sure all the tiny circles are roughly the same size
3. Now after you've drawn your first round of circles, select your next color, and go back and draw circles around those circles. Make sure they are just a little bit further out from the point, and also make sure that each of the circles is roughly the same size.
4. Keep doing step three, each time selecting your next color. The only thing is that if your circles start running into each other, you should make them flat against each other like this:



5. Keep doing these steps until you run out of

See the next page for a template tortoise, but of course feel free to make your own!

