

Name: _____

Surface Color: _____

Task Master: _____

Cynic: _____

Recorder: _____

The Park

*Working in small groups (3 or 4 people), solve as many of the problems below as possible. Try to resolve questions within the group before asking for help. Each group member should then write up solutions in their own words; please do not use this sheet for that purpose, but **please turn in this sheet as well**. Show your work! Explain why your answers work.*

On your Mark: You work for Granite Falls, a town which needs to move a playground due to harmful levels of lead (Pb) in the ground. The surface's height represents the concentration of lead (in $\frac{g}{m^2}$) in the topsoil at every location in Granite Falls. Lead levels range from $0.5\frac{g}{m^2}$ to $6\frac{g}{m^2}$.

- (1) The park is currently located at the red star. Mark all points on the surface with the same concentration of lead as the park.
- (2) Mark all points with lead concentrations $1\frac{g}{m^2}$ higher and $1\frac{g}{m^2}$ lower than at the park.
- (3) Could these curves intersect? Why or why not?

- (4) Sketch the curves by projecting them down onto a sheet of paper. Give appropriate labels.

Get Set: Granite Falls is a $10km \times 10km$ town in the $15.5 \times 21.5km$ Rock county. Find where the town is located in the county and place it there. Explain how you know you found the right location.

Go: The park measures $20m \times 20m$ at the red star. Determine the total mass of lead at the current location. Give units.

Challenge: The town wants to guarantee the level of lead in the park has less than $600g$. Find a location near the red star that achieves this level. Explain how you found this new location.