

Crystallization Worksheet **Answer Key**

1. List some common examples of crystals found in nature.

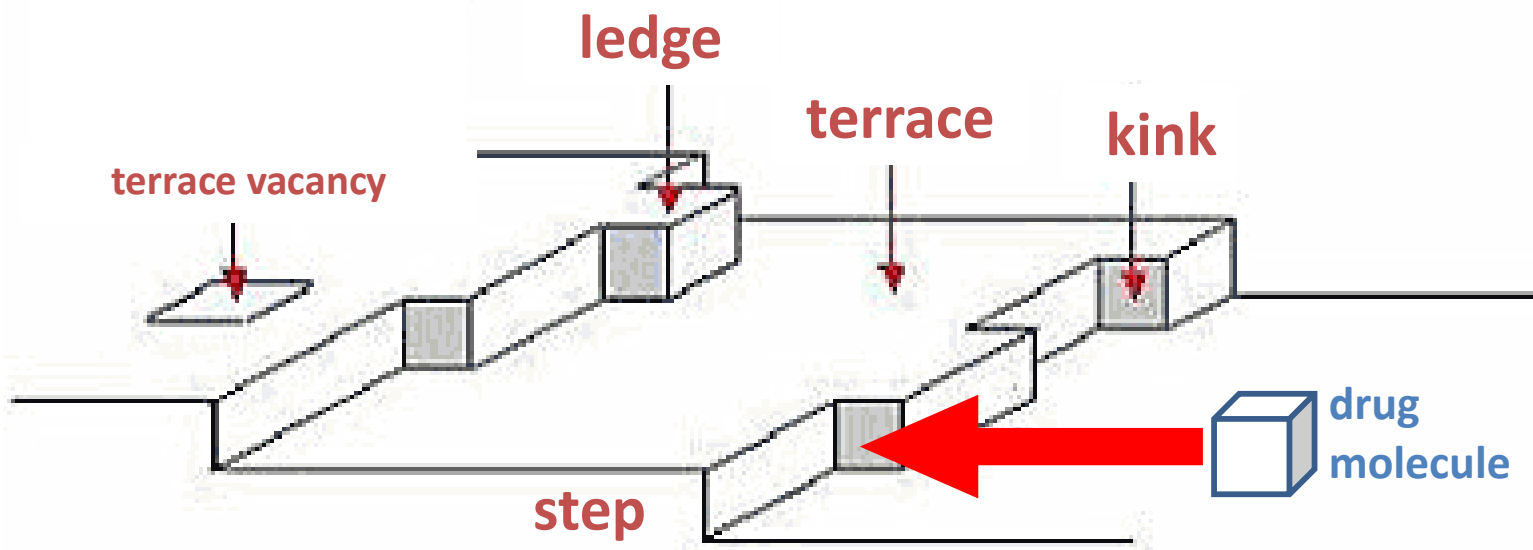
Examples: Rock salt, table salt, diamonds and gemstones, snowflakes, proteins, sugar (such as rock candy), malaria parasites (hemozoin), insulin

2. What drives crystal growth?

Supersaturation

3. Draw the surface of a crystal face. Where would a drug molecule bind to inhibit crystal growth?

A drug molecule would bind to the kink sites to block further crystal growth.



4. What are the four types of kidney stones?

Calcium oxalate, cystine, struvite and uric acid.

5. What must be considered when designing new drugs?

Efficacy: full inhibition of crystal growth

Potency: small amount of drug causes full inhibition

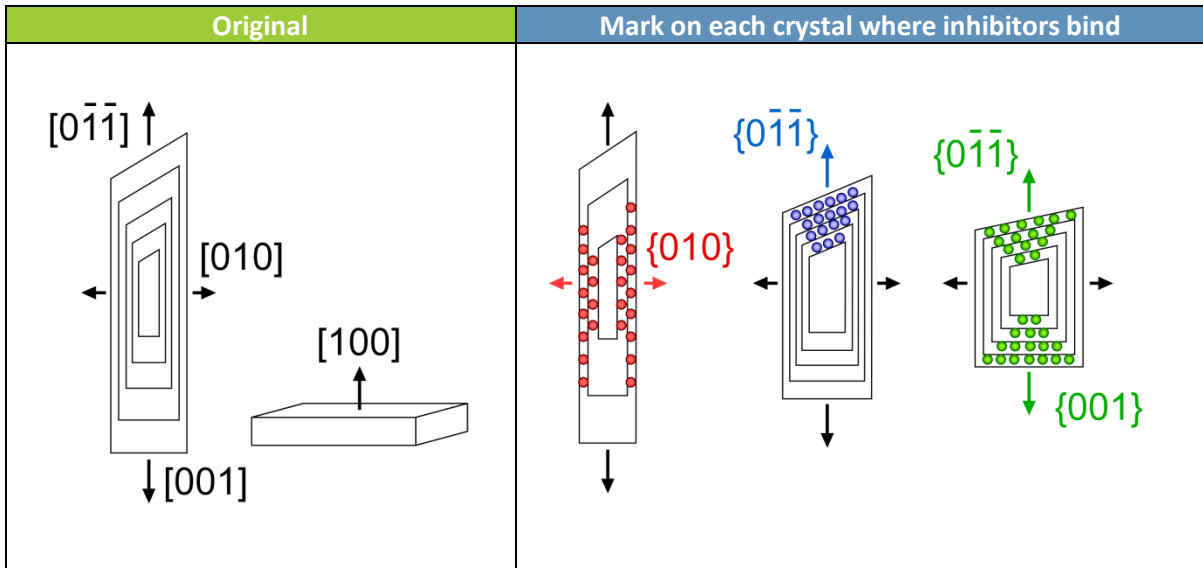
Cost: feasibility to manufacture

Administration: method of drug delivery to the body

Toxicity: radical side effects on the body from the drug

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6. Mark on the crystals where inhibitor molecules would bind to cause the crystal to have the observed shape or morphology.



For the second crystal with blue inhibitor molecules, another acceptable answer is to have the molecules bind the opposite face (the side where the arrow points down); in this case, it will be one or the other, but not both sides. The third crystal is for both faces.