

Matchmaker



Objective

Students will diagram the breeding history of a sample zoological polar bear population and apply this information to make husbandry decisions.

Materials

For each individual student or student group:

- Matchmaker** worksheet
- pencils.

Background

To conduct successful animal breeding programs, zoological staff create "studbooks," comprehensive records of animal births, deaths, and interinstitutional transfers. Studbooks record mating histories and provide data for captive breeding management including which animals are related so they will not be bred. Inbreeding damages genetic strength. Studbook data also may be used to analyze the demographics (statistical characteristics) of zoological populations including the size and density of current zoological populations, which animals reside at what locations, and specific breeding ages. Female polar bears become reproductively mature between 4 and 5 years; males at 6 years.

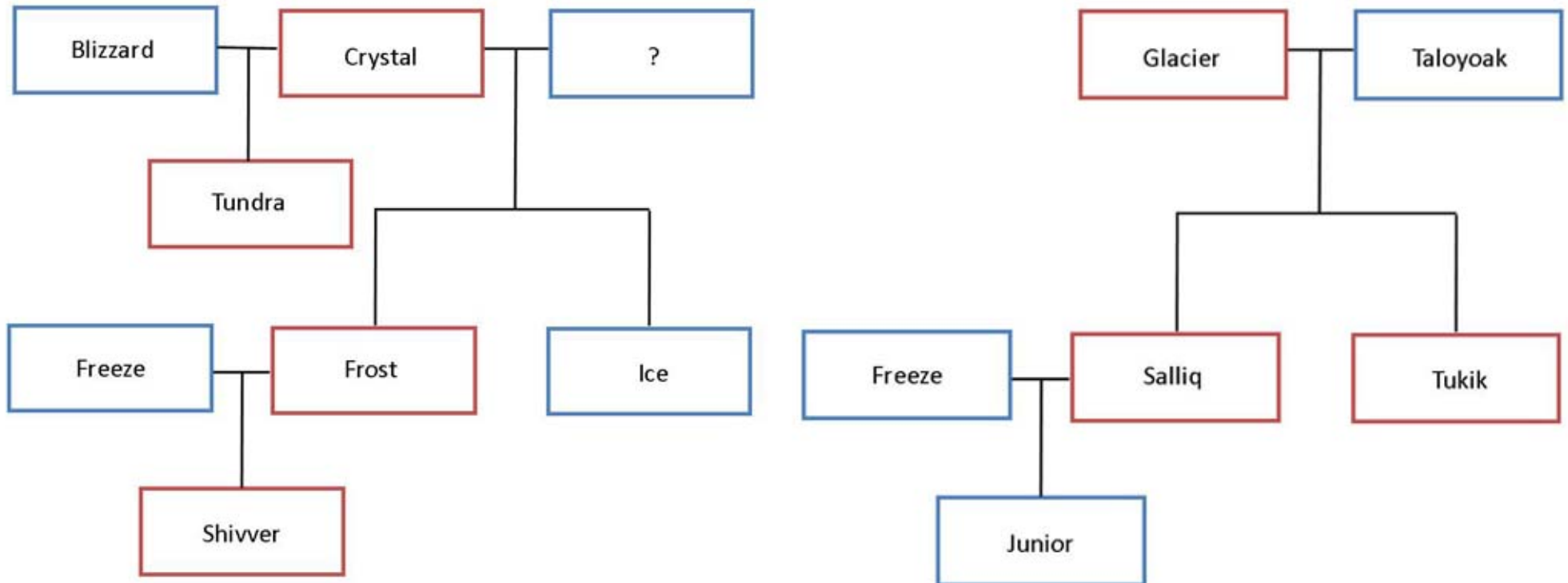
Action

1. As a class, discuss the importance of keeping animal breeding histories. What types of data might be recorded? (Data could include age of the animal, its location, and the names of the animal's mother and father.) How do zoological staff use this information? What problems might arise if this information was not available?
2. Distribute copies of the Matchmaker Worksheet. Read the introduction to Scenario 1 as a class. Discuss the format of the breeding diagram. This diagram is essentially the same as a family tree.
3. Students complete Scenarios 1 and 2.
4. As a class discuss students' answers. In Scenario 2, was there only one breeding option, or more than one? Was one option a better choice?



Answers

Scenario 1



Scenario 2

It's best to breed Shivver to either Tloyoak or Blizzard.

Matchmaker

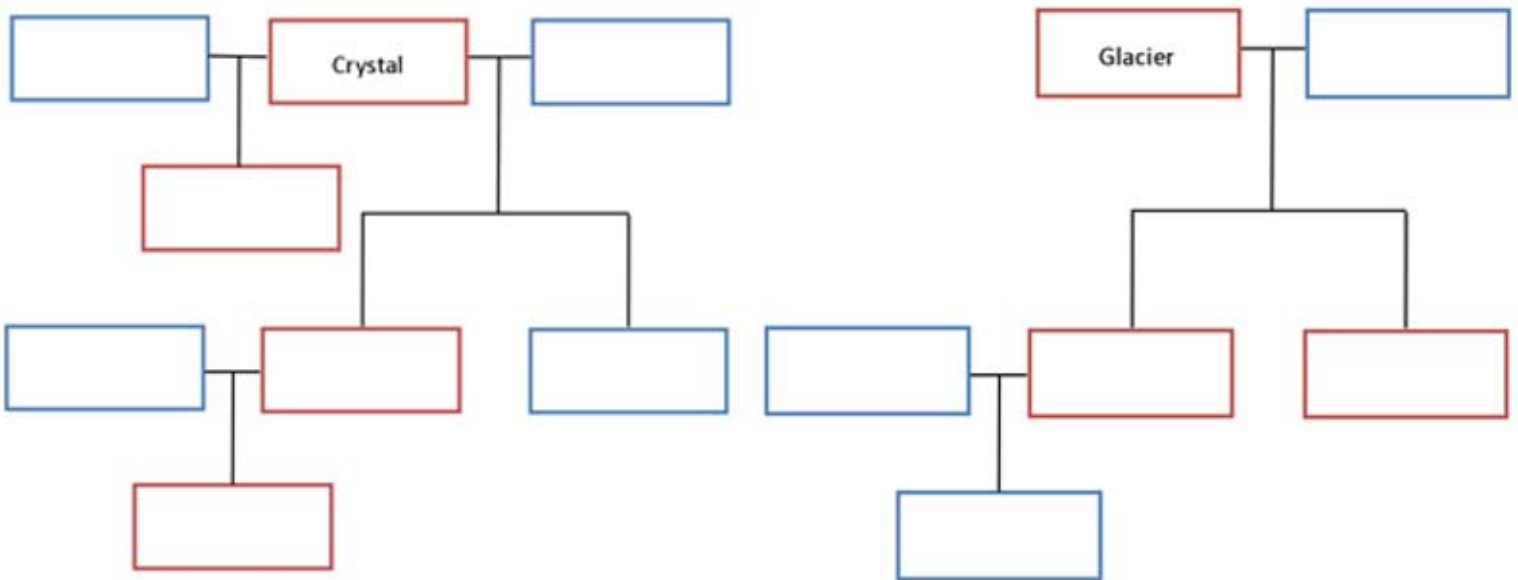


Scenario 1

Name _____

You are the director of XYZ Zoo. During the past 20 years, your zoological staff has recorded the following polar bear breeding histories. Now you would like to diagram this information. Using the chart below, fill in the boxes on the breeding history diagram. Use red boxes for females, and black boxes for males. The two oldest females are placed in the top red boxes. Use the "parents" column to complete the diagram. Female polar bears begin breeding between 4 and 5 years; males at 5 years. (NOTE: You may not be able to fill in all of the boxes. Breeding histories sometimes are incomplete.)

name	studbook#	gender	age	mother/father	location
Tundra	12	F	4	4/32	ABC Zoo
Tukik	38	F	3	6/5	XYZ Zoo
Frost	22	F	10	4/?	XYZ Zoo
Blizzard	32	M	11	unknown	123 Zoo
Glacier	6	F	14	unknown	XYZ Zoo
Ice	35	M	10	4/?	123 Zoo
Crystal	4	F	15	unknown	XYZ Zoo
Salliq	26	F	7	6/5	XYZ Zoo
Taloyoak	5	M	14	unknown	XYZ Zoo
Shivver	30	F	5	22/28	XYZ Zoo
Freeze	28	M	12	unknown	456 Zoo
Junior	39	M	1	26/28	XYZ Zoo



Scenario 2

You and your zoological staff want to breed Shivver. Which male(s) will you choose?