Name_____ _____ Period_____

Worksheet: Dihybrid Crosses

U N I T 3 : G E N E T I C S

STEP 1: Determine what kind of problem you are trying to solve.
STEP 2: Determine letters you will use to specify traits.
STEP 3: Determine parent's genotypes.
STEP 4: Make your Punnett square and make gametes
STEP 5: Complete cross and determine possible offspring.
STEP 6: Determine genotypic and phenotypic ratios.

Two-Factor Crosses (Di-hybrid)

Ex) A tall green pea plant (TTGG) is crossed with a short white pea plant (ttgg).

TT or Tt = tall tt = short GG or Gg = green gg = white

	TG	TG	TG	TG
tg	TtGg	TtGg	TtGg	TtGg
tg	TtGg	TtGg	TtGg	TtGg
tg	TtGg	TtGg	TtGg	TtGg
tg	TtGg	TtGg	TtGg	TtGg

16 Tall/Green : 0 Tall/White : 0 Short/Green : 0 Short/ White

Red seahorses are dominant over blue seahorses and a long dorsal fin is dominant to a short dorsal fin. Cross a hybrid (heterozygous) red, long finned (also heterozygous) seahorse with a blue heterozygous long finned seahorse. What is the phenotypic and genotypic ratio of the offspring?

Key

___ Red, Long: ___ Red, Short: ___ Blue, Long: ___ Blue, Short

B – five toes R – green skin
b – four toes r – blue skin

Try answering the following without making a Punnett Square?

If BBRr and Bbrr are crossed, how many toes will all their offspring have? _____ How can you tell?

_____

If Bbrr and Bbrr are crossed will all the offspring have blue skin? _____ How can you tell?

_____

In dihybrids, if both parents have all heterozygous traits (BbRr X BbRr), what will the phenotypic ratio of the offspring ALWAYS be?