

# Kawaii Genetics

Introduction: The creatures of the Island of Kawaii are the world's cutest species of animals. Let's take a closer look to see how combinations of genes are creating the cutest species on the planet.

## Determine the phenotype for each genotype.

Square bodies are dominant to round bodies.

SS \_\_\_\_\_ Ss \_\_\_\_\_ ss \_\_\_\_\_

Round eyes are dominant to dot eyes.

RR \_\_\_\_\_ Rr \_\_\_\_\_ rr \_\_\_\_\_

Absence of a horn is dominant to having a horn present.

AA \_\_\_\_\_ Aa \_\_\_\_\_ aa \_\_\_\_\_

## Determine the possible genotypes for each phenotype.

A small mouth (S) is dominant to a wide mouth (s).

Small mouth \_\_\_\_\_ Wide mouth \_\_\_\_\_

Round cheeks (R) are dominant oval cheeks (r).

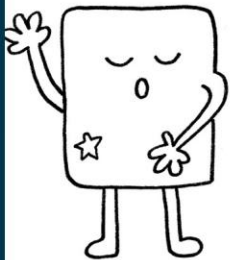
Round cheeks \_\_\_\_\_ Oval cheeks \_\_\_\_\_

The Absence of Ears (A) is dominant to the presence of ears (a).

Absence of Ears \_\_\_\_\_ Presence of Ears \_\_\_\_\_

You will need to use the information about the kawaii traits above to answer the following questions.

1. Tsumi is a square kawaii creature (Ss). Lunu is a round kawaii creature (ss). Create a Punnett square to show the possible offspring that Tsumi and Lunu could produce.




Possible genotypes \_\_\_\_\_

Possible phenotypes \_\_\_\_\_

% chance square \_\_\_\_\_ % chance round \_\_\_\_\_



2. JoJo has the largest homozygous dominant round eyes on Kawaii island, while Gobi has the smallest homozygous recessive dot eyes. Create a Punnett square to show the possible offspring that JoJo and Gobi could produce.



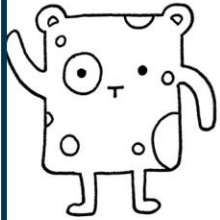

Possible genotypes \_\_\_\_\_

Possible phenotypes \_\_\_\_\_

% chance round \_\_\_\_\_ % chance dot \_\_\_\_\_



3. Ears are a recessive trait in Kawaii. Mofu has ears and GoGo is hybrid for ears and does not have them. Create a Punnett square to show the possible offspring that Mofu and GoGo could produce.



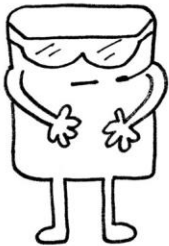

Possible genotypes \_\_\_\_\_

Possible phenotypes \_\_\_\_\_

% chance no ears \_\_\_\_\_ % chance ears \_\_\_\_\_



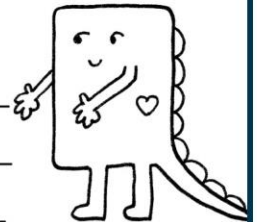
4. A small mouth can make the cutest smile. Loofa and Dodine are hybrids for small mouths. Create a Punnett square to show the possible offspring that Loofa and Dodine could produce.




Possible genotypes \_\_\_\_\_

Possible phenotypes \_\_\_\_\_

% chance small \_\_\_\_\_ % chance wide \_\_\_\_\_



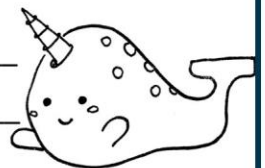
5. Horns in Kawaii are unique and prized. Mofu and Riru both have horns. Create a Punnett square to show the possible offspring that Mofu and Riru could produce.




Possible genotypes \_\_\_\_\_

Possible phenotypes \_\_\_\_\_

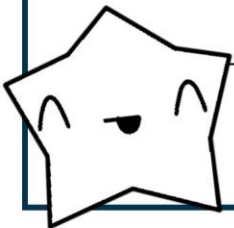
% chance no horn \_\_\_\_\_ % chance horn \_\_\_\_\_



Is it possible for two kawaii creatures without horns to have offspring with a prized horn? Justify your answer.

\_\_\_\_\_

\_\_\_\_\_



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## Determine the phenotype for each genotype.

Square bodies are dominant to round bodies.

SS Square Ss Square ss Round

Round eyes are dominant to dot eyes.

RR Round Rr Round rr Dot

Absence of a horn is dominant to having a horn present.

AA Absent (no horn) Aa Absent (no horn) aa Horn

## Determine the possible genotypes for each phenotype.

A small mouth (S) is dominant to a wide mouth (s).

Small mouth SS, Ss Wide mouth ss

Round cheeks (R) are dominant oval cheeks (r).

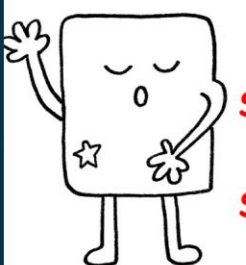
Round cheeks RR, Rr Oval cheeks rr

The Absence of Ears (A) is dominant to the presence of ears (a).

Absence of Ears AA, Aa Presence of Ears aa

You will need to use the information about the kawaii traits above to answer the following questions.

1. Tsumi is a square kawaii creature (Ss). Lunu is a round kawaii creature (ss). Create a Punnett square to show the possible offspring that Tsumi and Lunu could produce.



	S	s
S	Ss	ss
s	Ss	ss

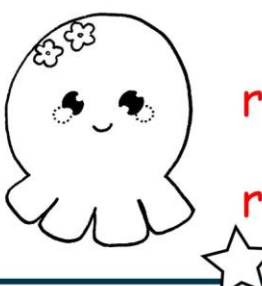
Possible genotypes Ss, ss

Possible phenotypes Square, Round

% chance square 50% % chance round 50%



2. JoJo has the largest homozygous dominant round eyes on Kawaii island, while Gobi has the smallest homozygous recessive dot eyes. Create a Punnett square to show the possible offspring that JoJo and Gobi could produce.



	R	R
r	Rr	Rr
r	Rr	Rr

Possible genotypes Rr

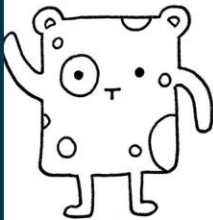
Possible phenotypes Round

% chance round 100% % chance dot 0%





3. Ears are a recessive trait in Kawaii. Mofu has ears and GoGo is hybrid for ears and does not have them. Create a Punnett square to show the possible offspring that Mofu and GoGo could produce.

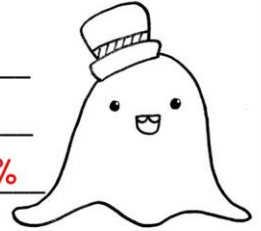


	A	a
a	Aa	aa
a	Aa	aa


Possible genotypes Aa, aa

Possible phenotypes Absent (no ears) , Ears

% chance no ears 50% % chance ears 50%



4. A small mouth can make the cutest smile. Loofa and Dodine are hybrids for small mouths. Create a Punnett square to show the possible offspring that Loofa and Dodine could produce.

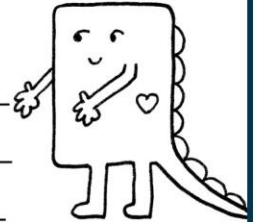


	S	s
S	SS	Ss
s	Ss	ss


Possible genotypes SS, Ss, ss

Possible phenotypes Small, Wide

% chance small 75% % chance wide 25%



5. Horns in Kawaii are unique and prized. Mofu and Riru both have horns. Create a Punnett square to show the possible offspring that Mofu and Riru could produce.

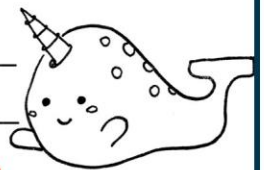


	a	a
a	aa	aa
a	aa	aa

Possible genotypes aa

Possible phenotypes Horns

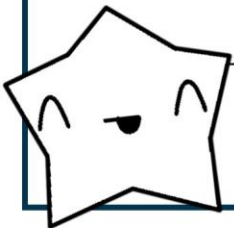
% chance no horn 0% % chance horn 100%



Is it possible for two kawaii creatures without horns to have offspring with a prized horn? Justify your answer.

Yes. If two heterozygous creatures (Aa x Aa) cross, then 25% of the

offspring could have a horn.





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