

# Honey Bee Dance Language

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The dance language honey bees use to communicate information about food sources is not fully understood and is still being studied. In fact, there are some scientists that do not believe the dance is a means of communicating at all.

The studies are mostly done by putting out feeders with sugar syrup then marking honey bees with a dot of paint that fly out of the colony to feed. The bees are kept in a special observation hive with glass on the side so the individually marked bees can be observed when they return to the hive. This is actually a very easy experiment and you can try it yourself if you have an observation hive. By moving the feeder or having multiple feeders you can compare the dance the returning bee does with the location of the feeder. You can also change the concentration of the sugar syrup in the feeder and see if the dance changes.

The following are conclusions of some of the research done on this subject.

Different races of bees change from the round dance to the waggle dance at different distances. The distances shown here are for the Italian honey bee (*Apis mellifera ligustica*).

During the dance, the dancing bee will stop periodically and give the bees following the dance a taste of the nectar that she is bringing back. The following bees will also touch her with their antennae. This presumably gives them information on the taste and scent of the nectar they are trying to find.

The **round dance** (Plate 1) is used for nectar sources approximately 0-20' (0-6 m) from the hive. The quality and quantity of the source is conveyed by the speed of the dance.

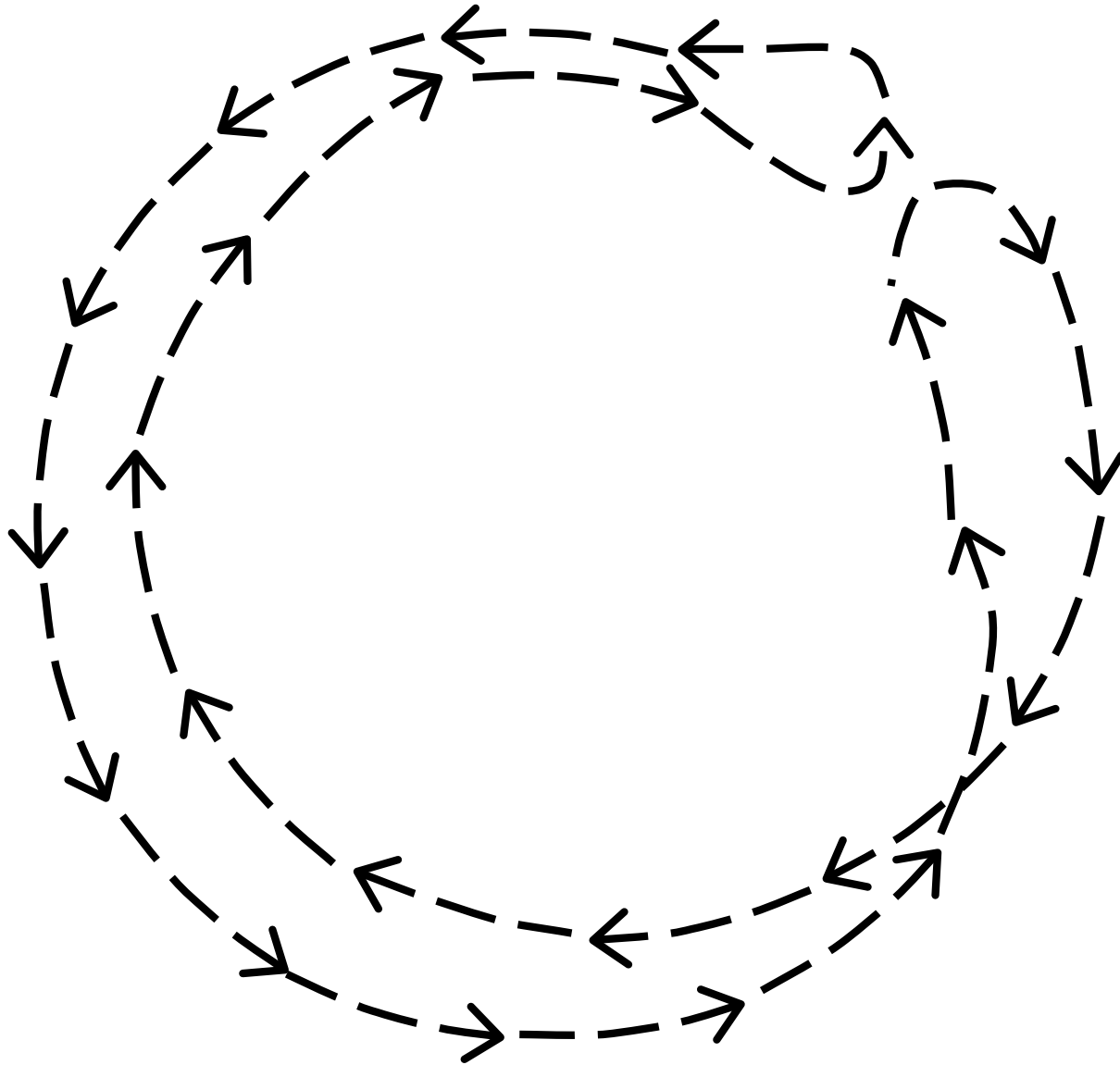
The **crescent dance** (Plate 2) is used for nectar sources approximately 25' - 75' (8-22 m) from the hive. The quality and quantity of the source is also conveyed by the speed of the dance.

The **waggle dance** (Plate 6) is used for nectar sources approximately 115' - 300+' (35-100+ m). The direction is conveyed by the direction of the straight portion of the dance in relation to the sun. The sun is positioned straight up on the comb. So if the bee dances with the straight portion of the dance straight up the comb it means the nectar is straight toward the sun. If she dances at a 30 degree angle to the right of vertical, it means the nectar is 30 degrees to the right of the sun. If there is an obstruction that must be flown around, the bee will indicate the straight line distance to the source. The distance is conveyed by how many times the bee makes a complete cycle (figure 8). The distance is further if the dance is slower (2000' = 11 cycles in 30 seconds). It is closer if the dance is faster (1000' = 15 cycles in 30 seconds). The distance is actually given as an expenditure of energy required to reach the source not actually in feet or meters. If there is a head wind the bees will dance showing a further distance than the same distance with no wind. In addition to the direction, the quality of the nectar source is indicated by the waggle portion of the dance which is done during the straight line of the dance. The waggle is wider from side to side and faster for increased quantity or quality (sugar content) or the nectar source).

Gaps in distances shown for different dances mean no one has studied those distances yet. The transition dances (Plates 3-5) take place during part of the gap from crescent to waggle dance. It is probably not a definite distance when the dance changes. We know that different races change dances at different distances so even within colonies it may vary.

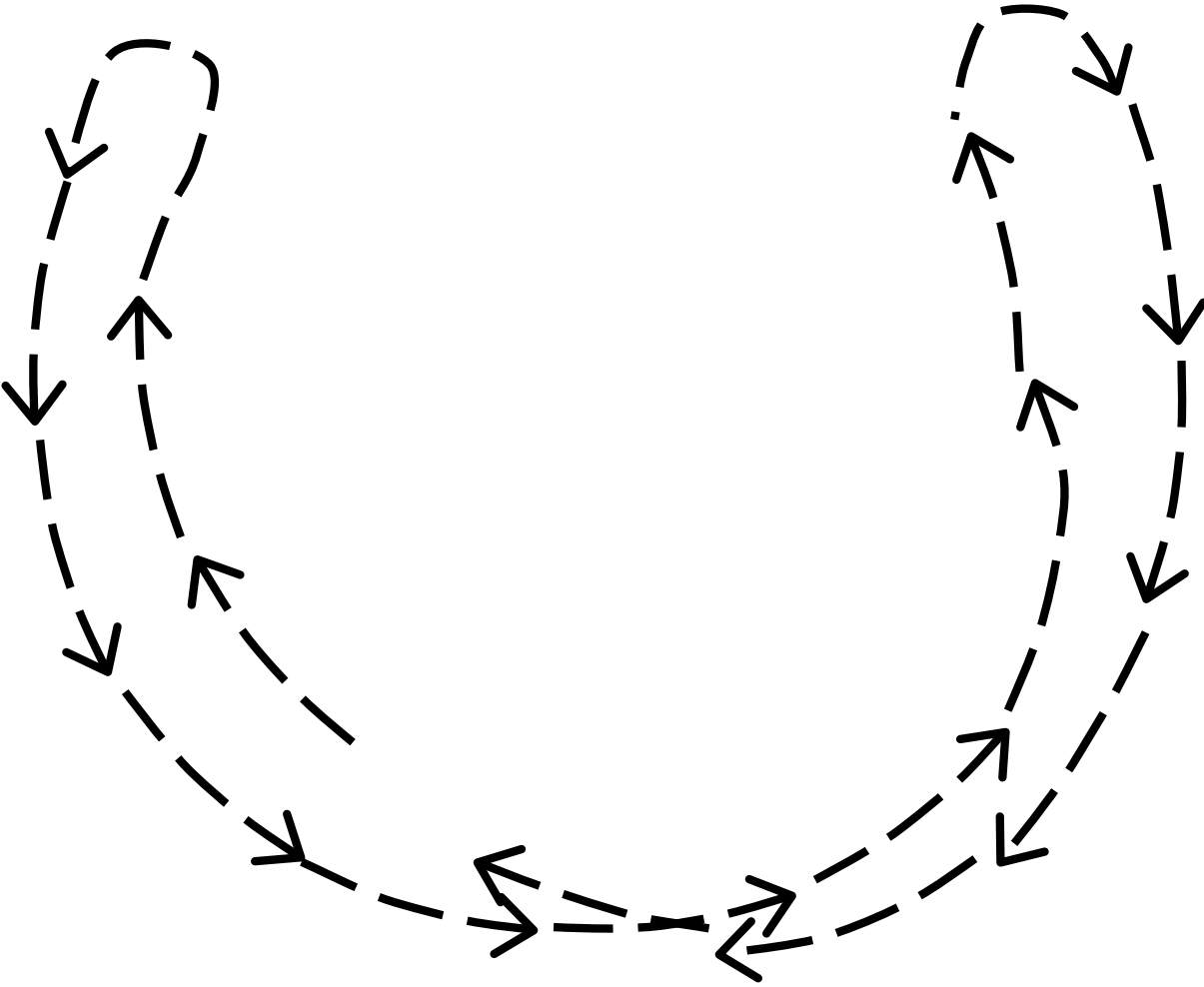
# Round Dance <20 ft (6 m) (*Apis Mellifera Ligustica*)

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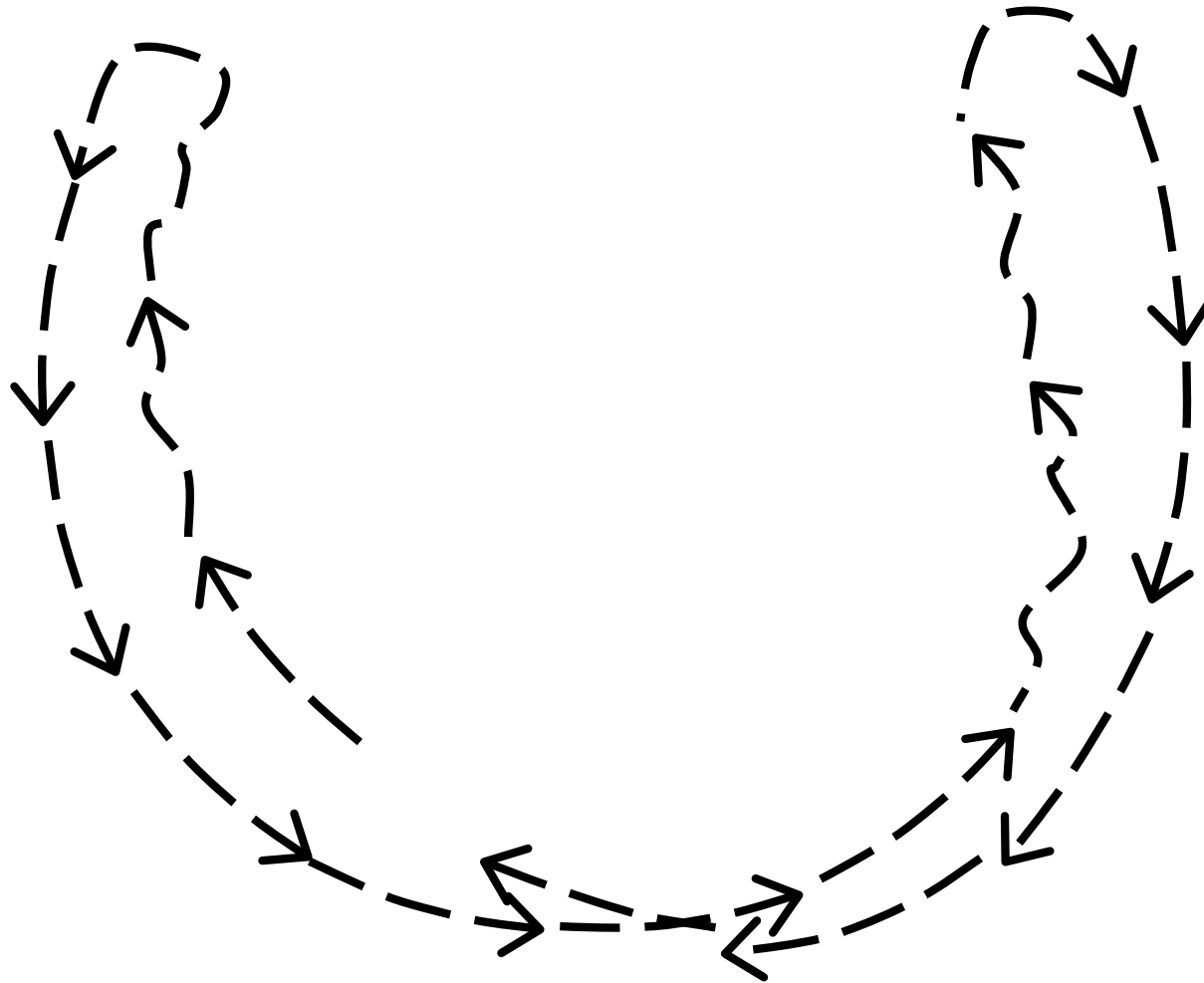
# Crescent dance 25' - 75' (8-22m)(*Apis Mellifera Ligustica*)

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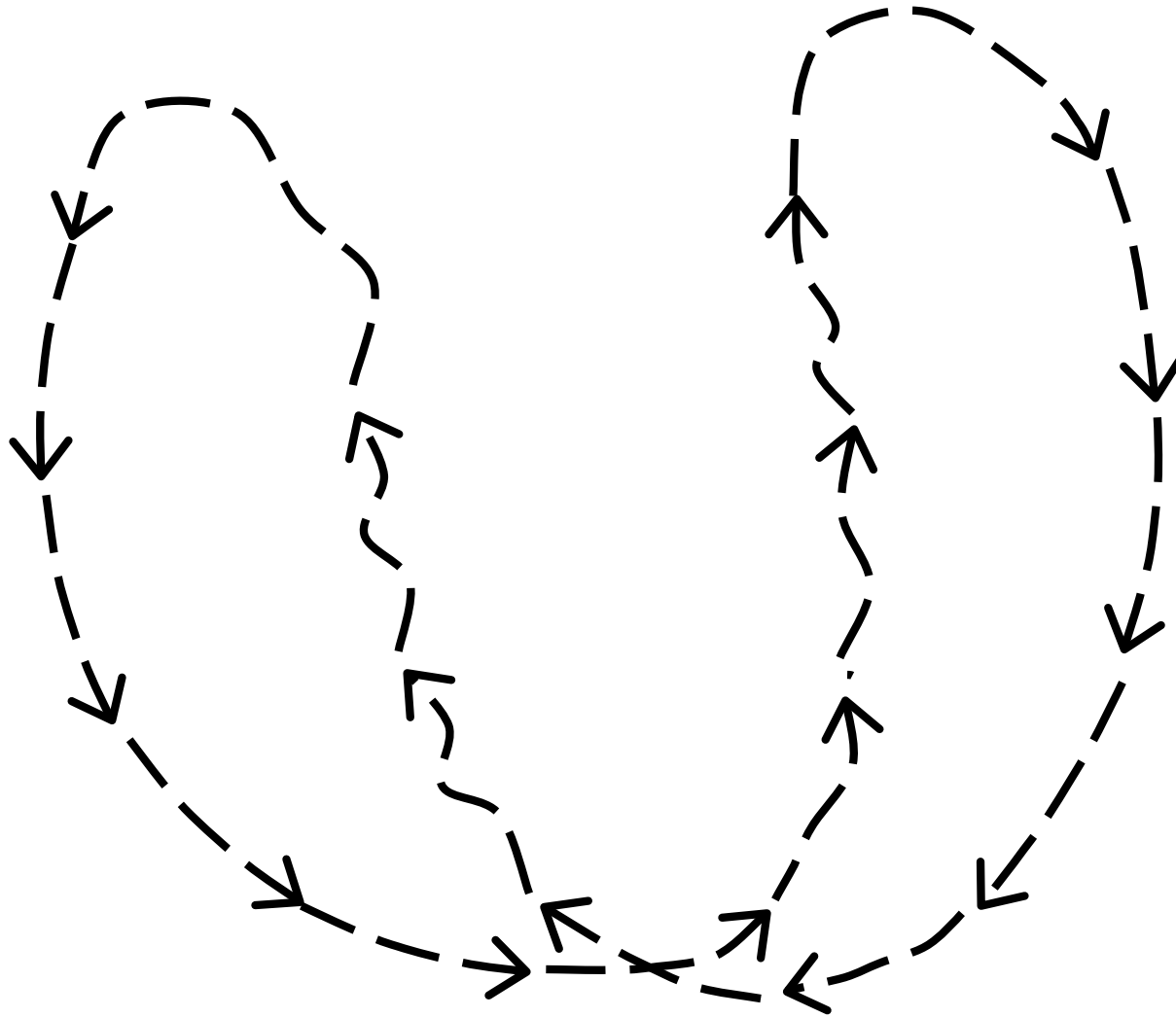
# Transition from Crescent to Waggle dance (*Apis Mellifera Ligustica*)

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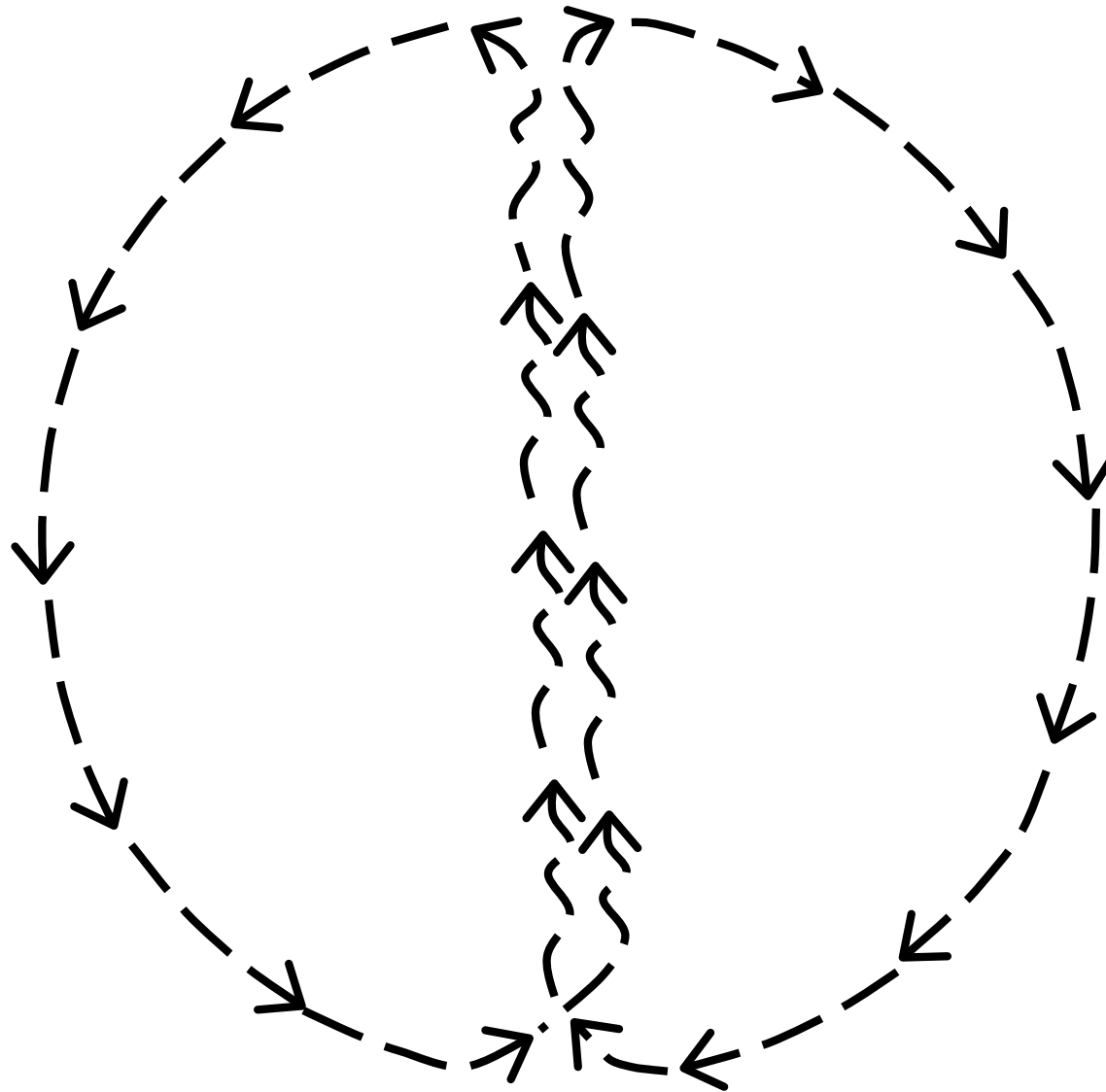
# Transition from Crescent to Waggle dance (*Apis Mellifera Ligustica*)

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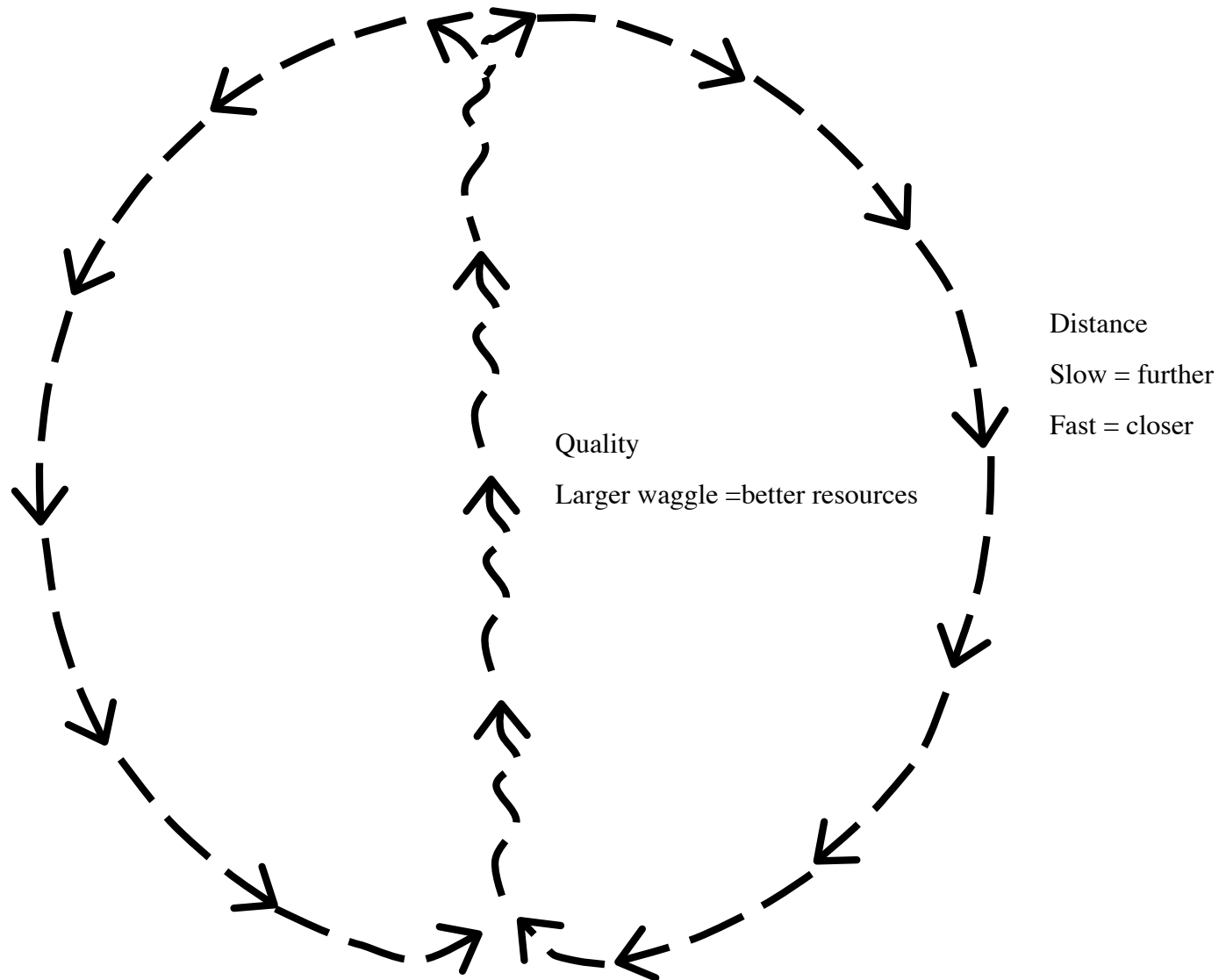
# Transition from Crescent to Waggle dance (*Apis Mellifera Ligustica*)

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# Waggle dance >330 ft. (100 M) (*Apis Mellifera Ligustica*)

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# Waggle Dance

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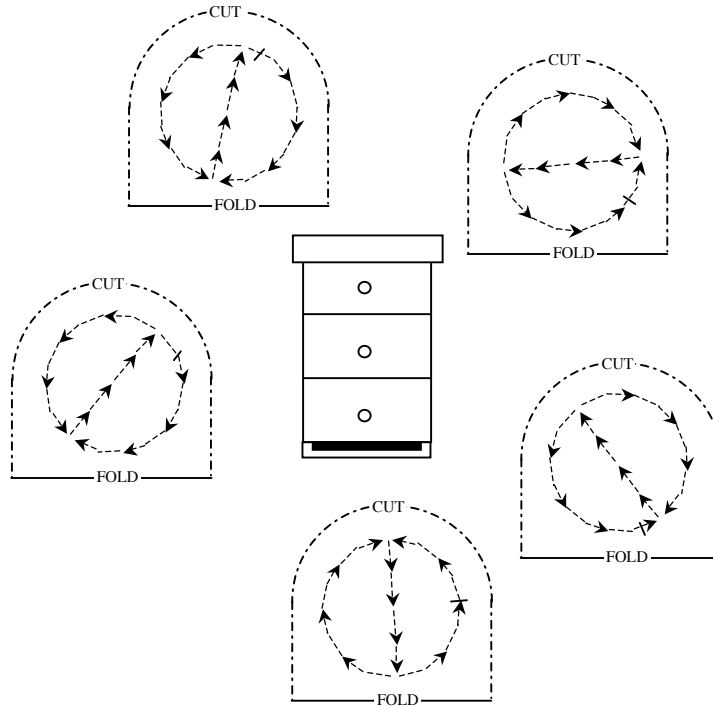
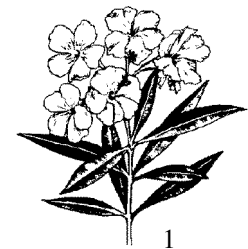
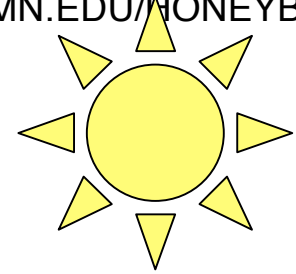
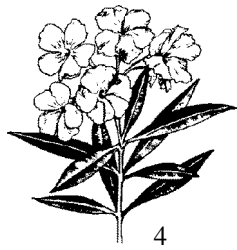


Plate 7a

Pretend you are a bee. Draw a line from the bee dance to the flowers.

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# Waggle Dance

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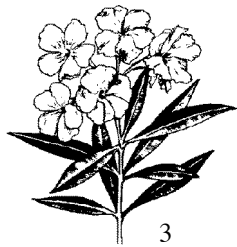
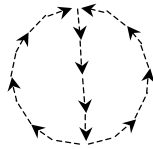
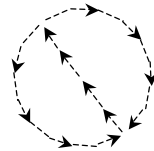
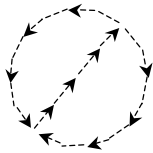
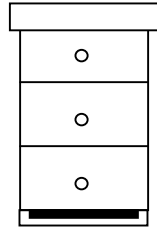
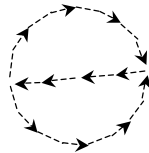
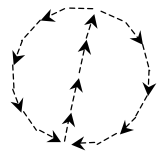
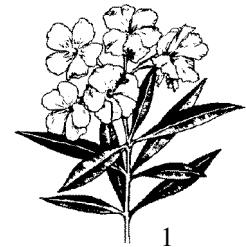
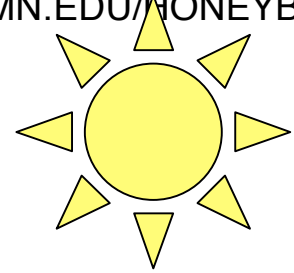
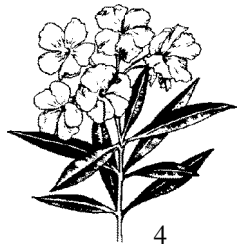


Plate 7b

Pretend you are a bee. Draw a line from the bee dance to the flowers.

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# Waggle Dance

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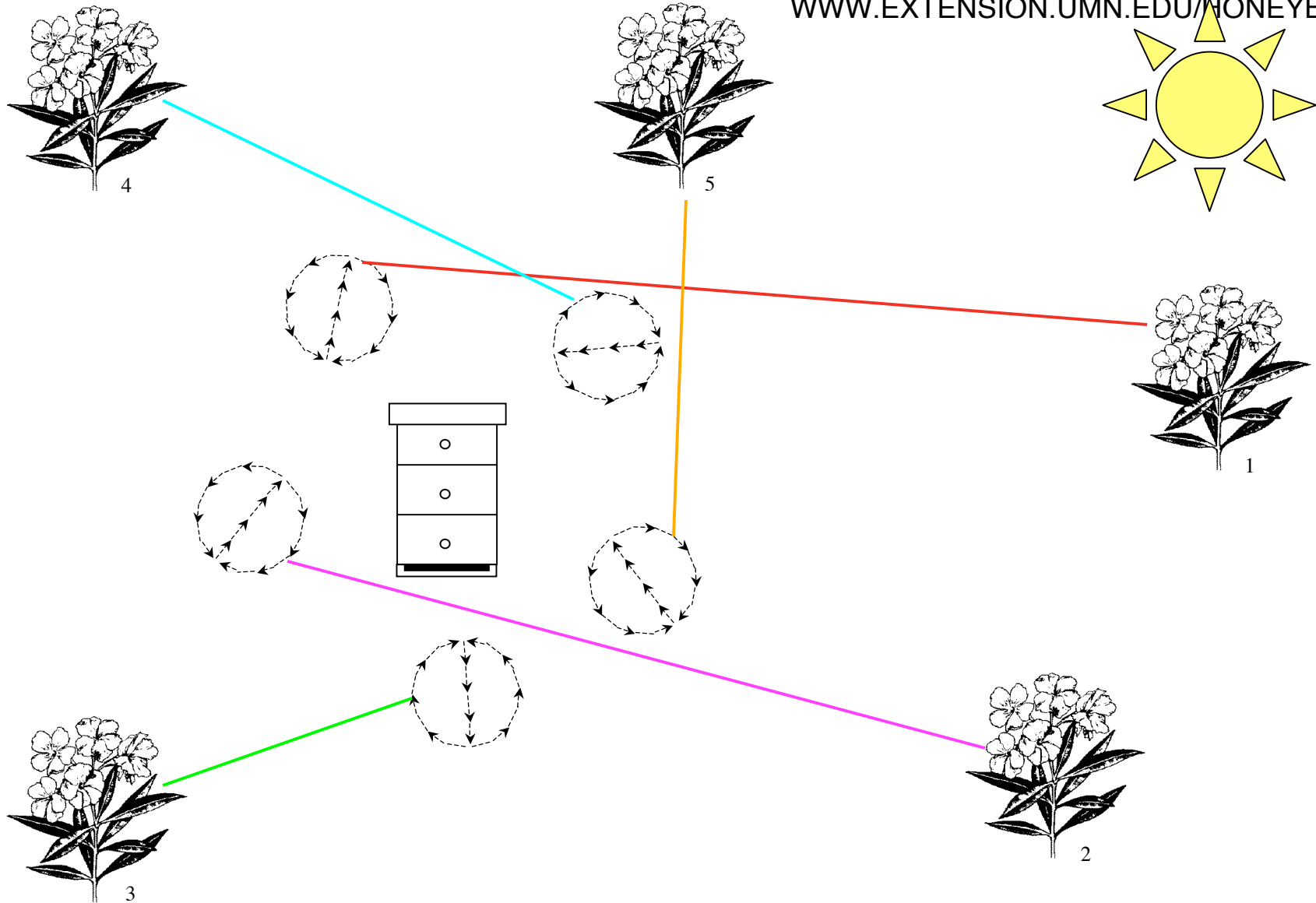


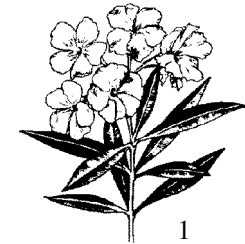
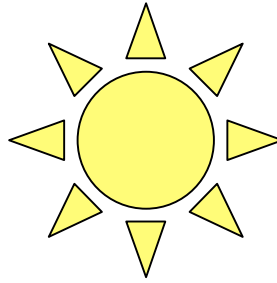
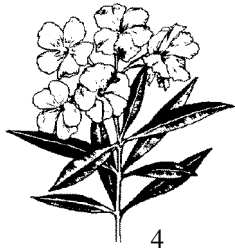
Plate 7c

Pretend you are a bee. Draw a line from the bee dance to the flowers.

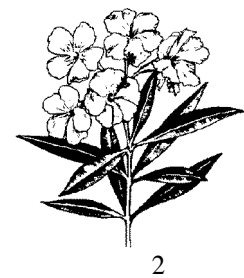
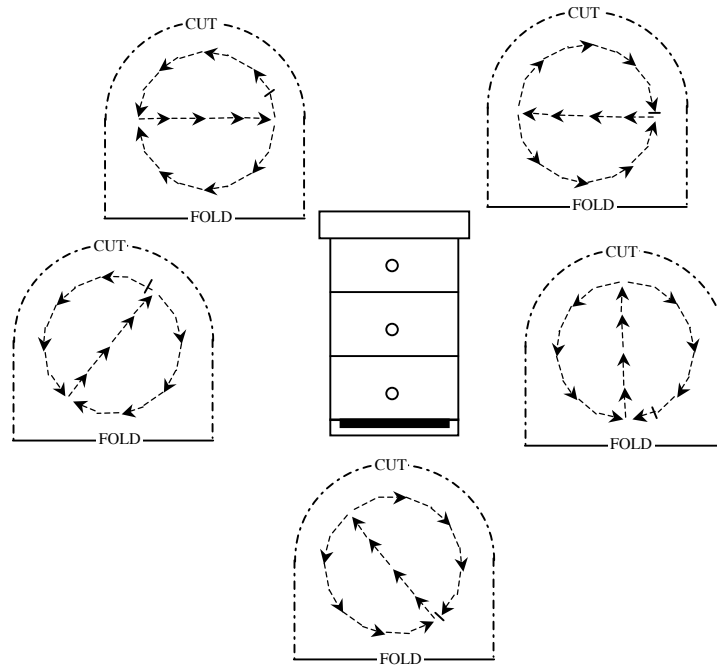
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# Waggle Dance

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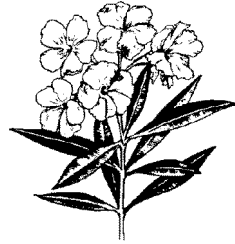
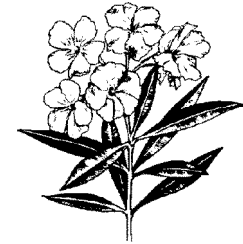
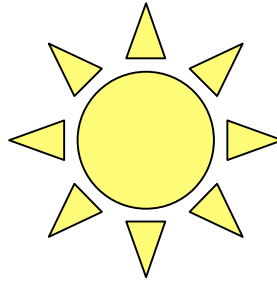
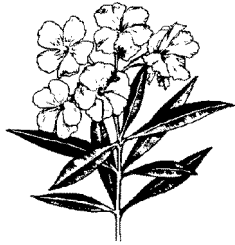


Pretend you are a bee.  
Draw a line from the bee  
dance to the flowers.



# Waggle Dance

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Pretend you are a bee.  
Draw a line from the bee dance to the flowers.

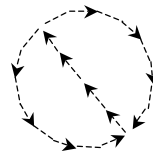
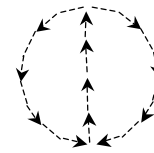
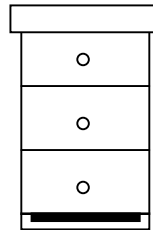
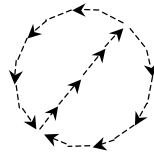
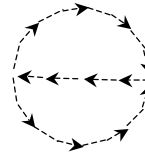
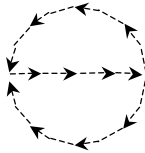
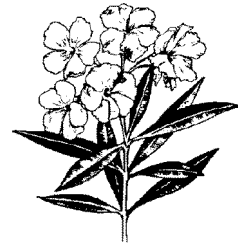
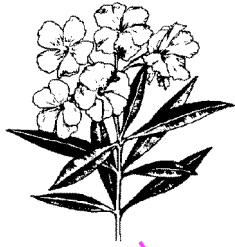
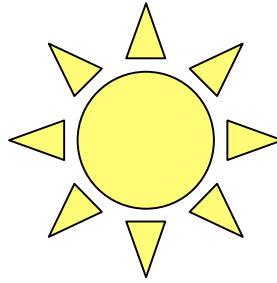


Plate 8b

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# Waggle Dance

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Pretend you are a bee.  
Draw a line from the bee dance to the flowers.

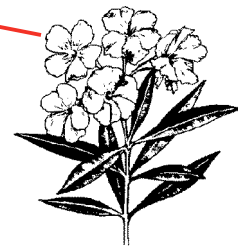
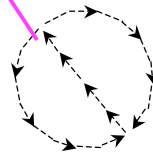
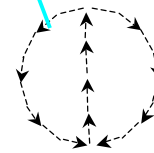
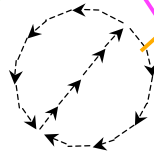
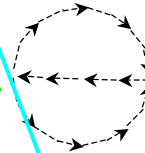
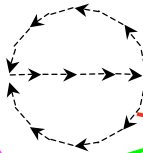
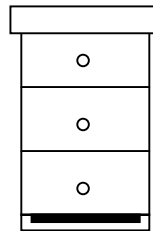
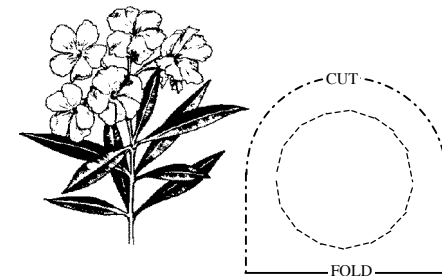
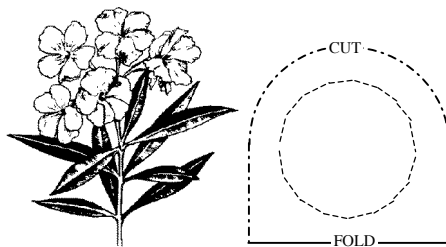
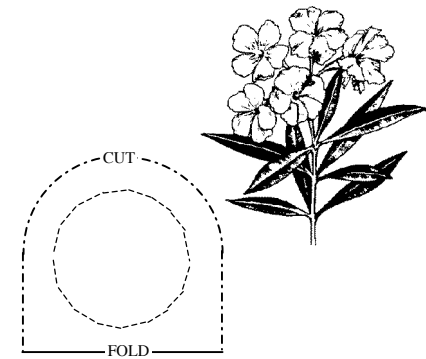
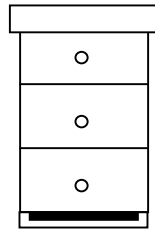
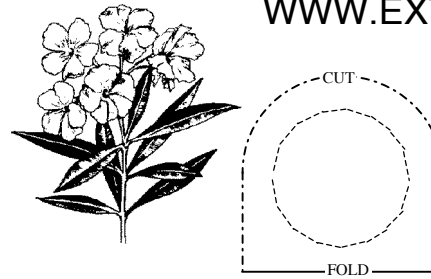
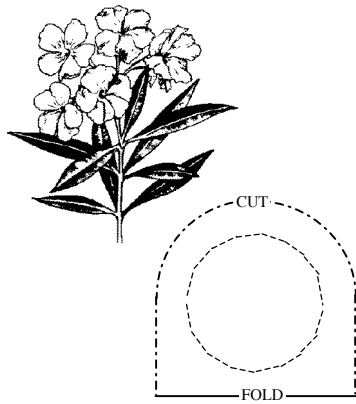


Plate 8c

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# Waggle Dance

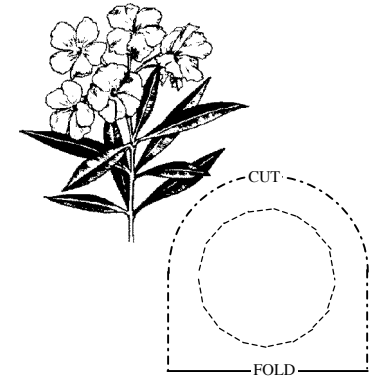
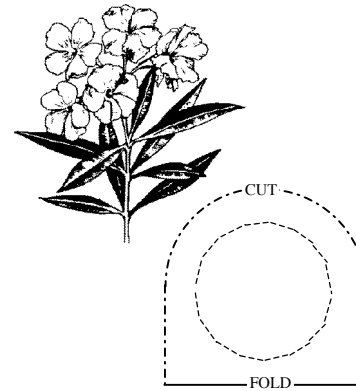
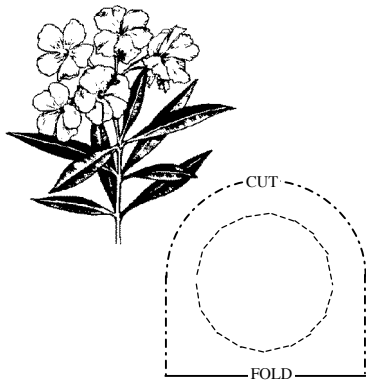
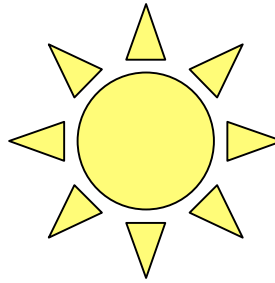
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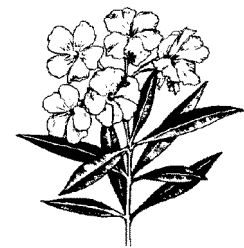
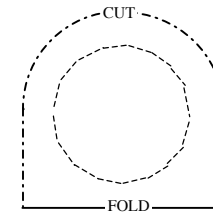
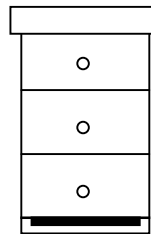
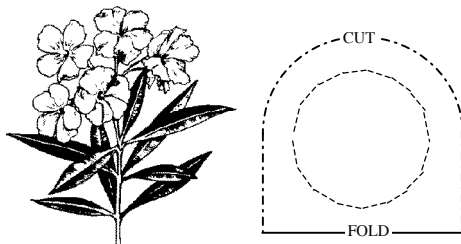
Pretend you are a bee. Draw a sun in the picture. Fill in the waggle dance a bee would do to tell other bees how to get to the flowers.

# Waggle Dance

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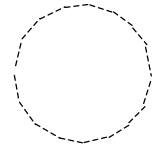
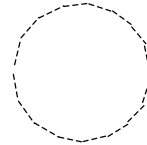
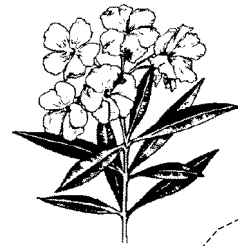
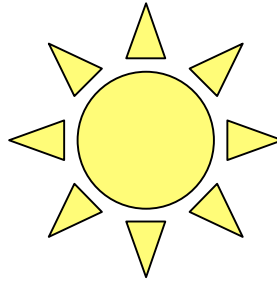
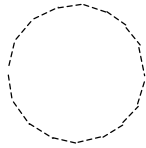
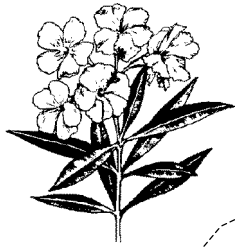


Pretend you are a bee.  
Fill in the waggle dance  
a bee would do to tell  
other bees how to get to  
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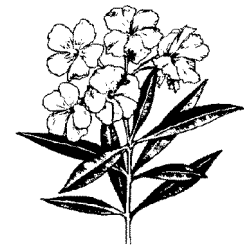
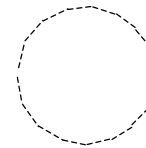
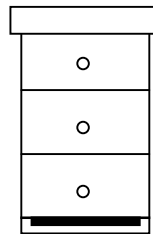
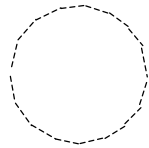
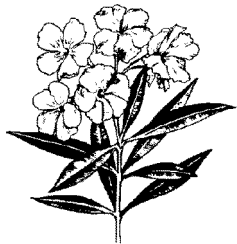


# Waggle Dance

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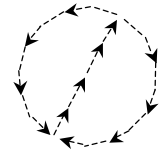
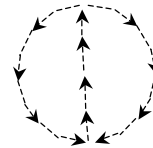
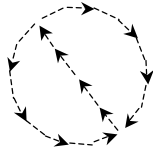
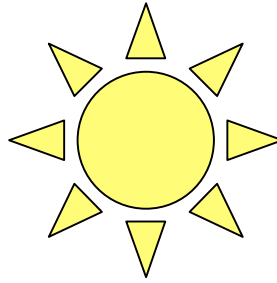
Pretend you are a bee.  
Fill in the waggle dance  
a bee would do to tell  
other bees how to get to  
the flowers.





# Waggle Dance

[WWW.EXTENSION.UMN.EDU/HONEYBEES](http://WWW.EXTENSION.UMN.EDU/HONEYBEES)



Pretend you are a bee.  
Fill in the waggle dance  
a bee would do to tell  
other bees how to get to  
the flowers.

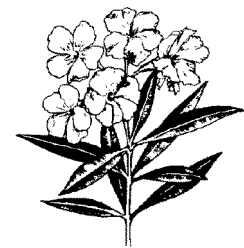
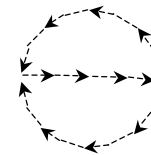
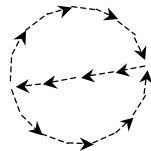
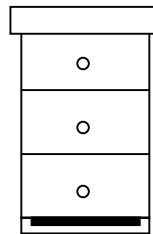


Plate 10c

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