

# Insects face similar challenges as we do!

Find food and shelter

Mate and reproduce

Care for young

Protect themselves from predators

Learn, and Remember (yes, they have brains!)

Teach

Recognize each other

Cheat



# Finding food: location, and learning the right food

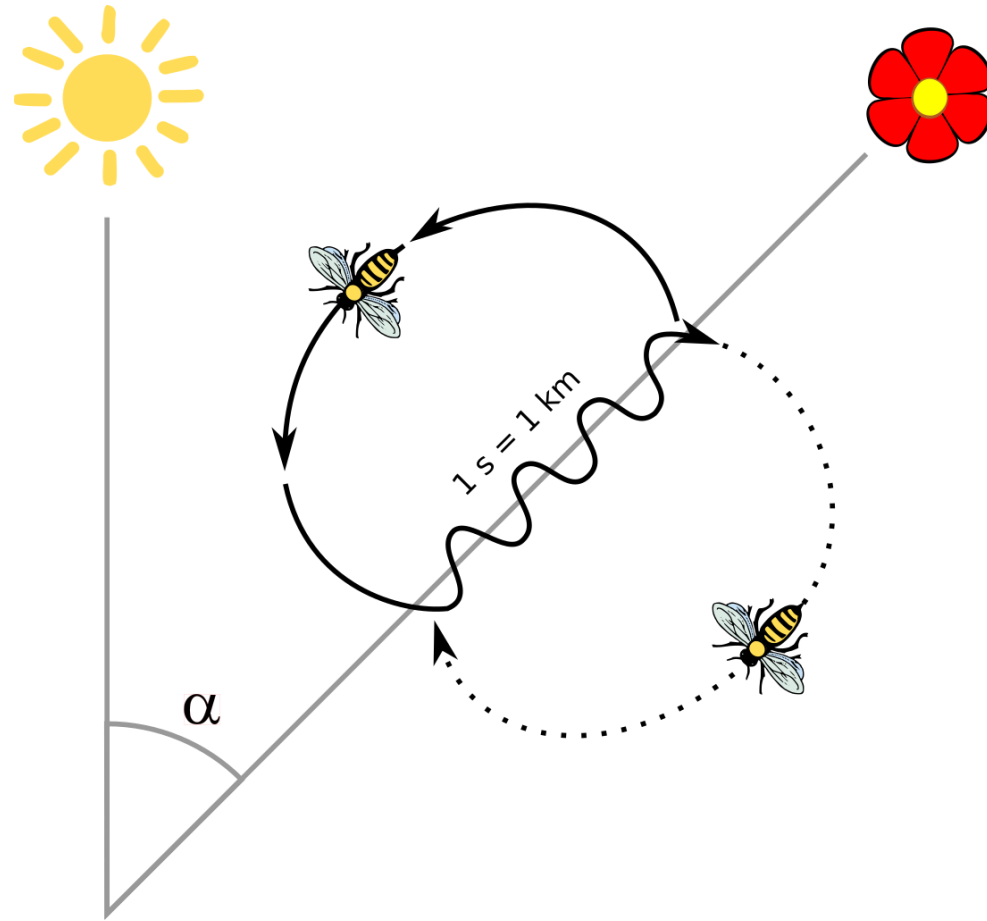


# Finding Food:

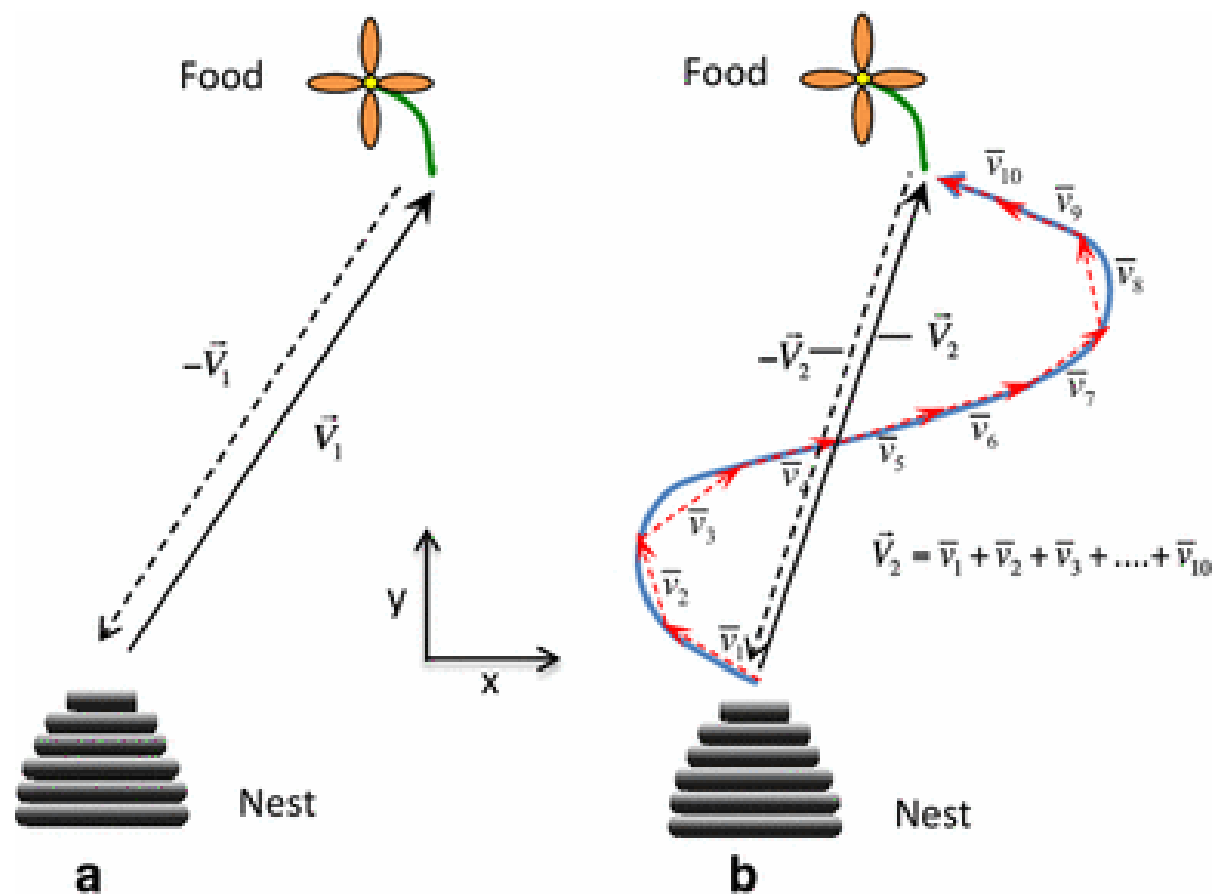
## How do bees see the world?



# How do bees find food?



# How do bees find food and get back home?

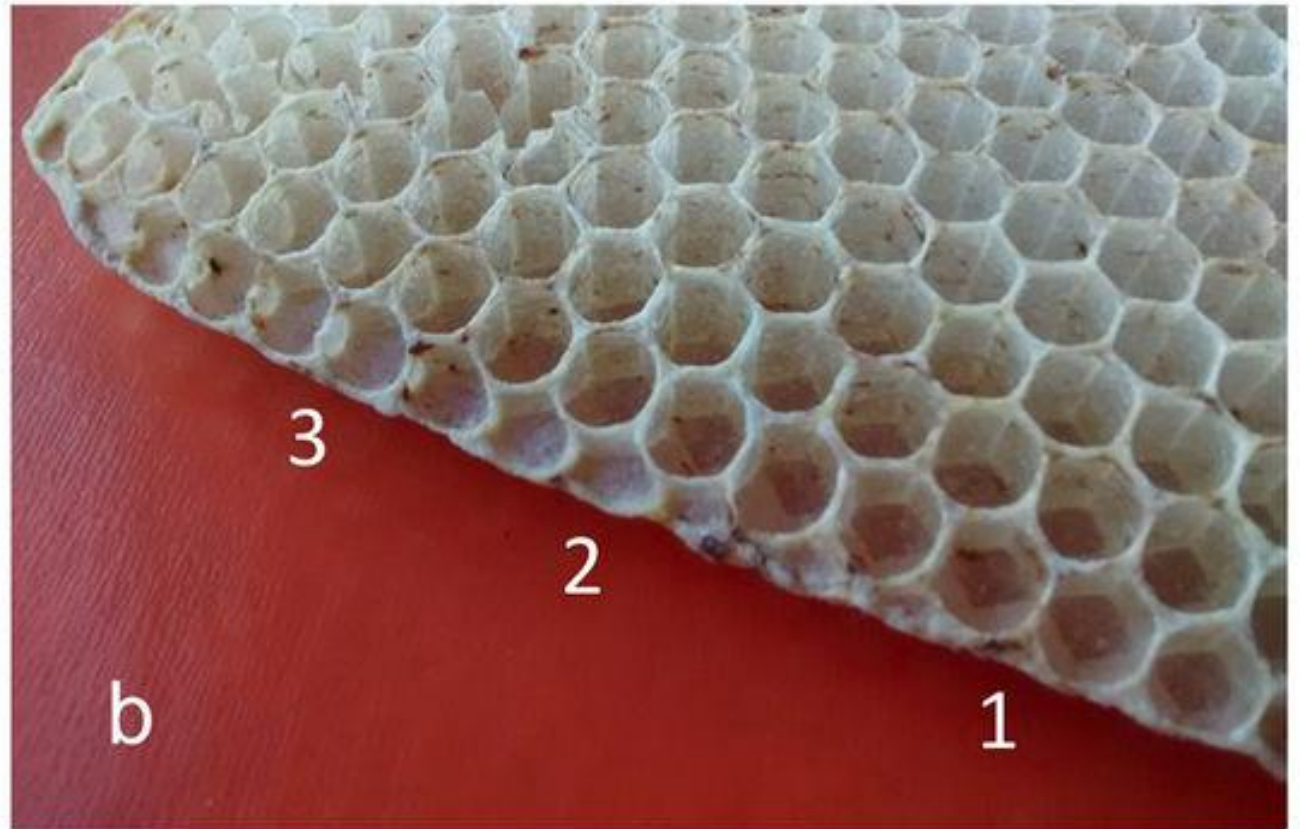
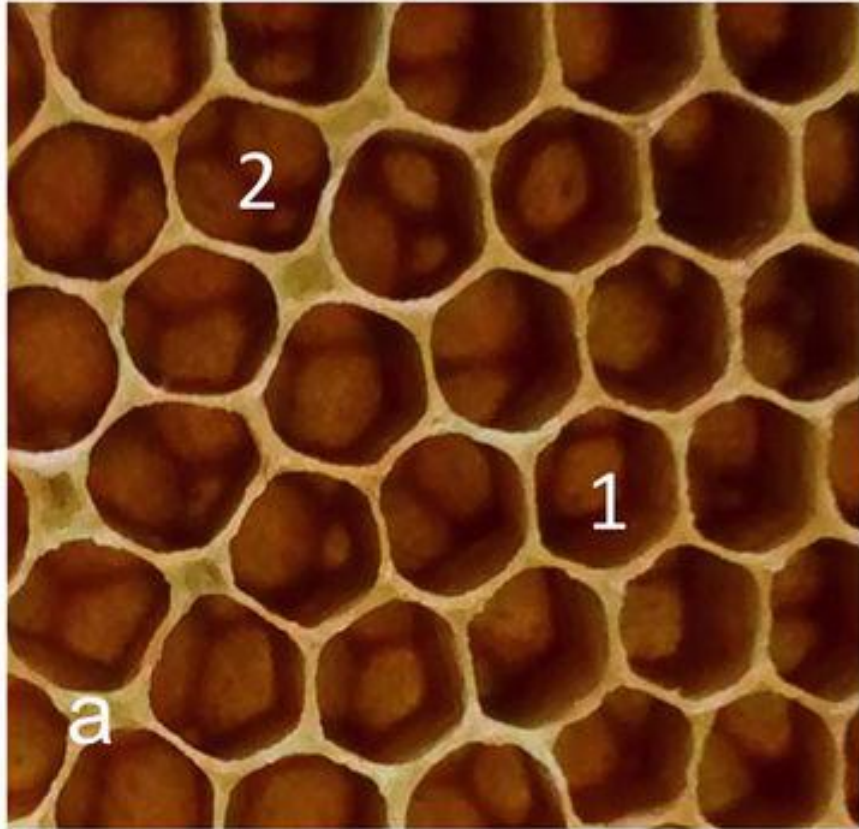


Path integration

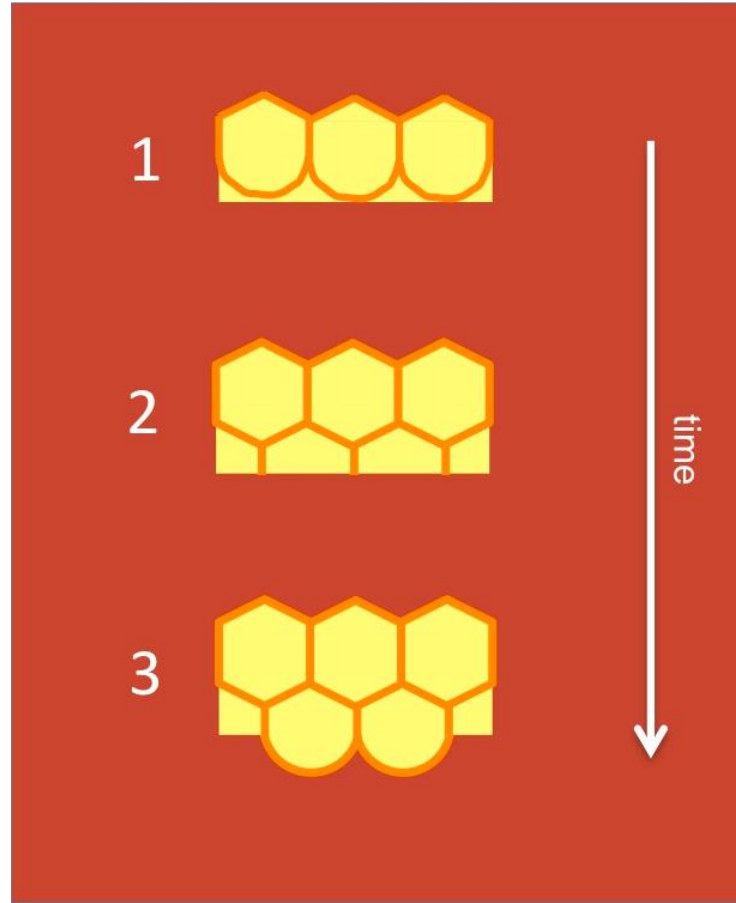
# How do bees build a house?



What's the best way to build a nest? Square, circle, triangle, hexagon?



# Construction of a new cell



# How do termites build their houses?





King and queen



Worker

Soldier

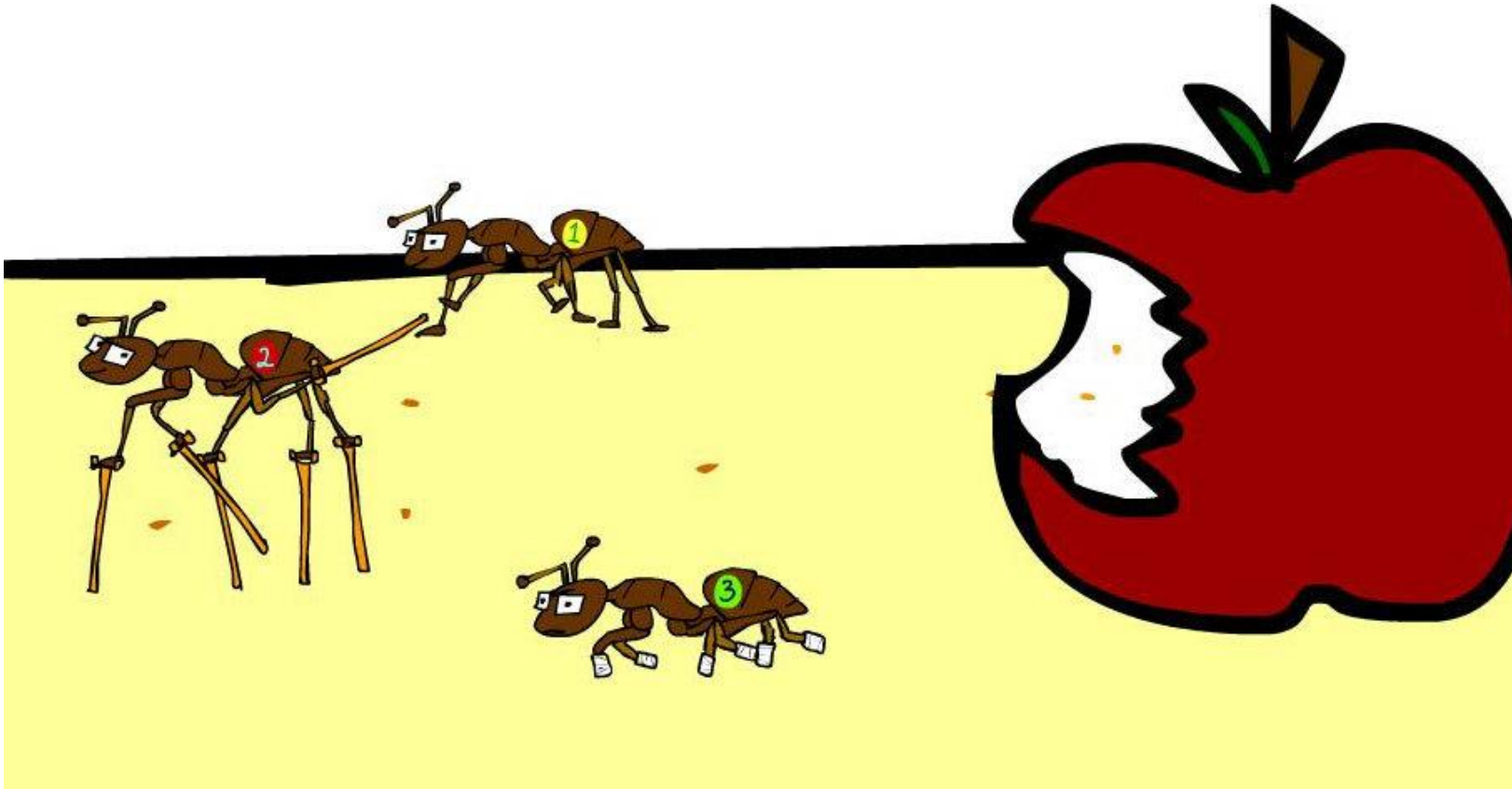


# How do ants find their way?



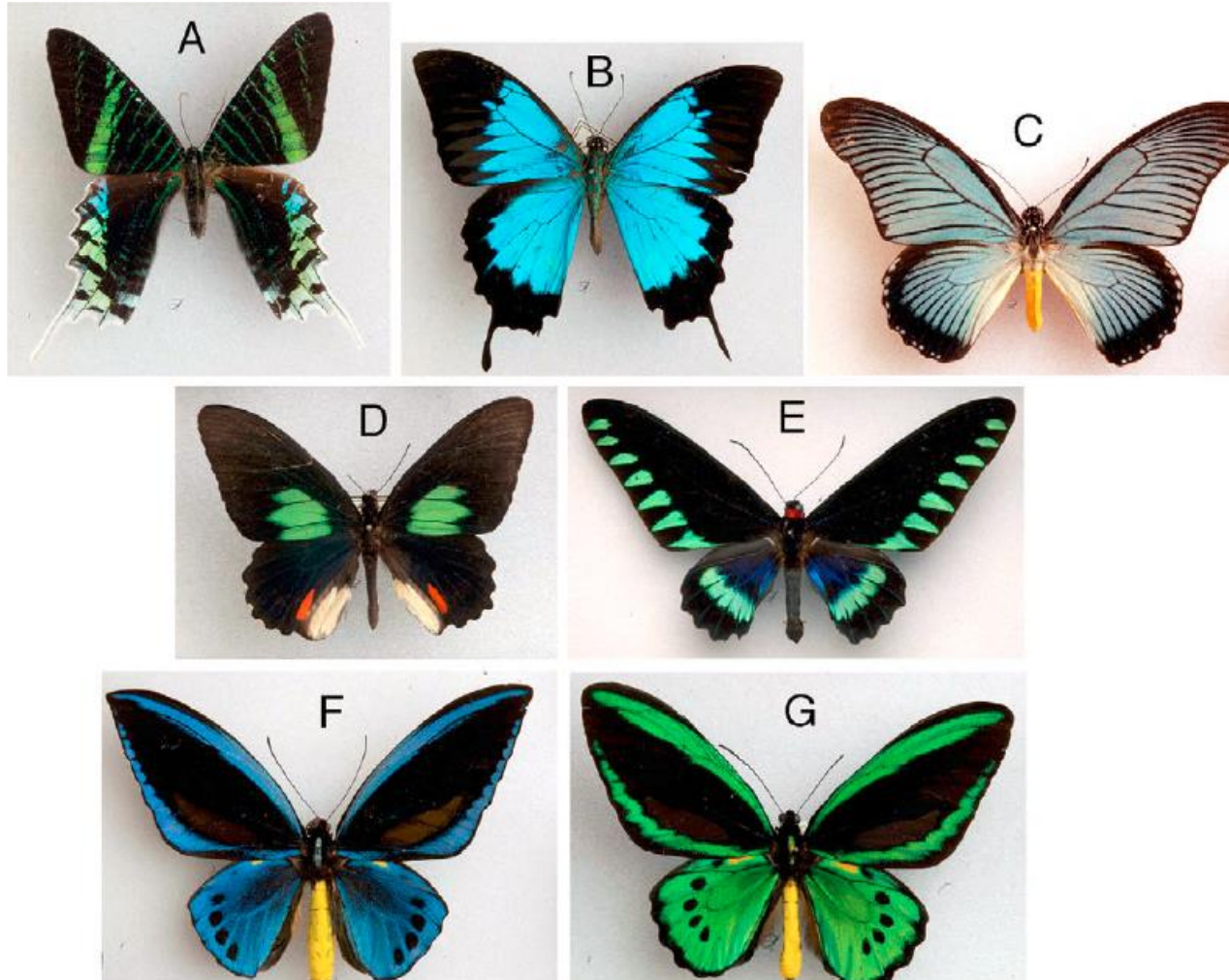
*Cataglyphis fortis*: Desert ant. No landmarks in the desert!

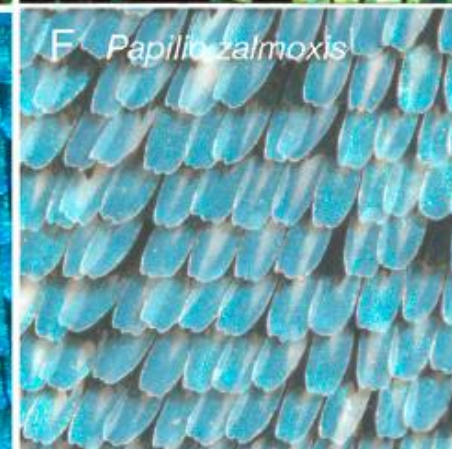
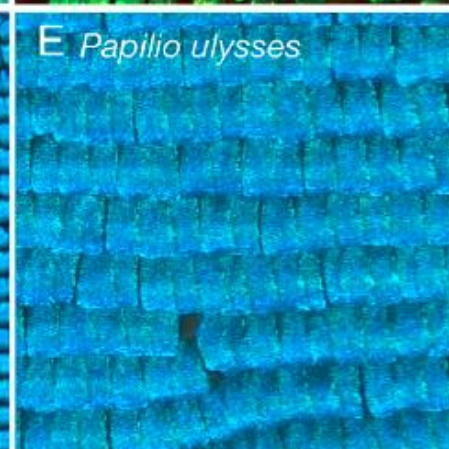
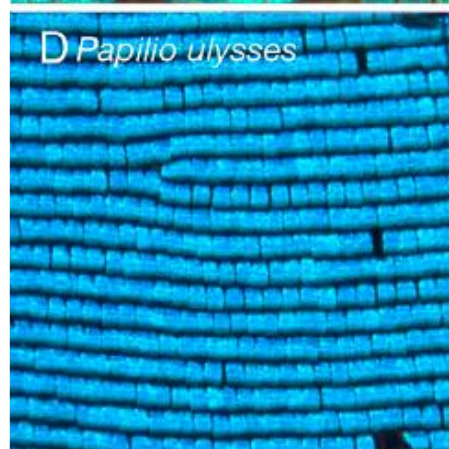
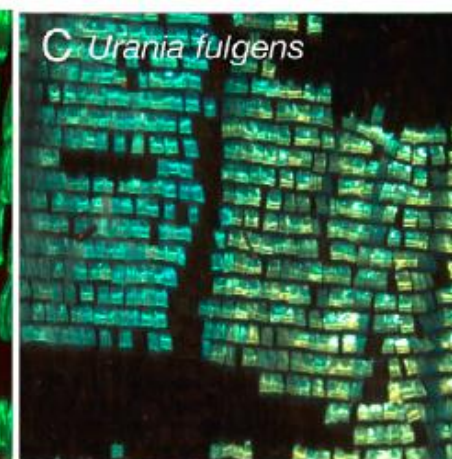
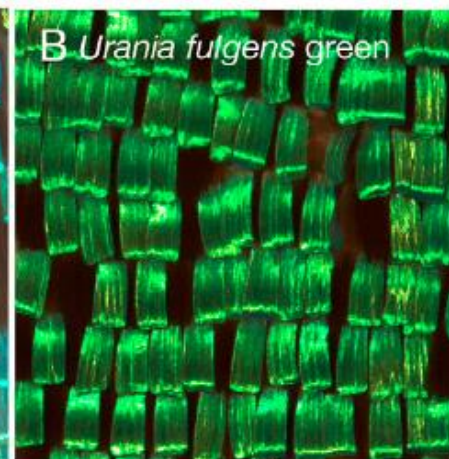
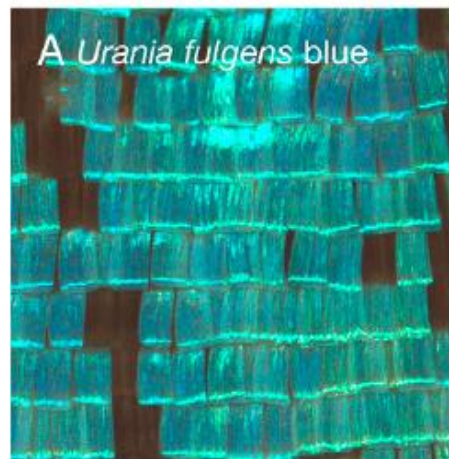
Ants can count!!

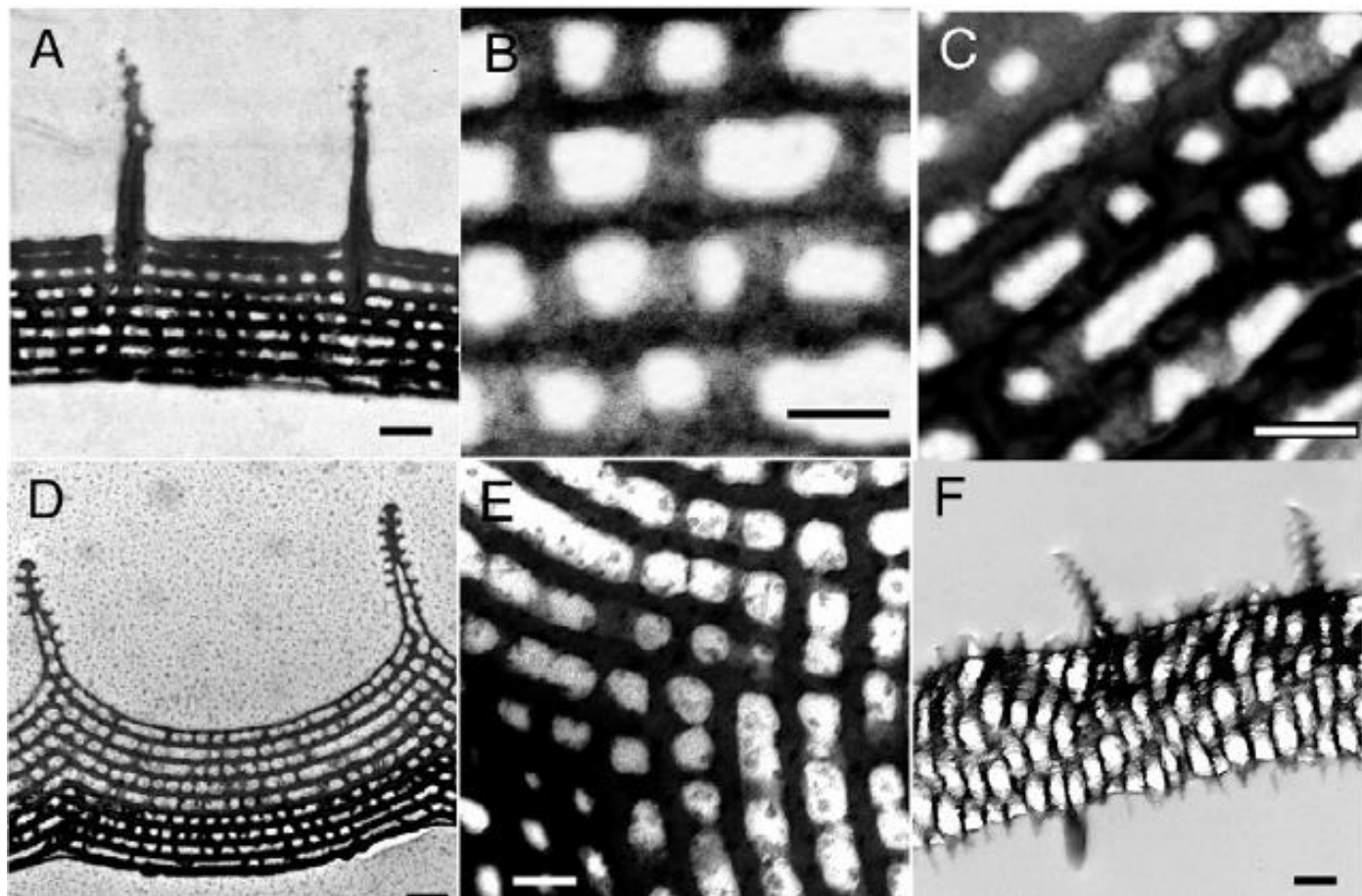


They may have an internal pedometer

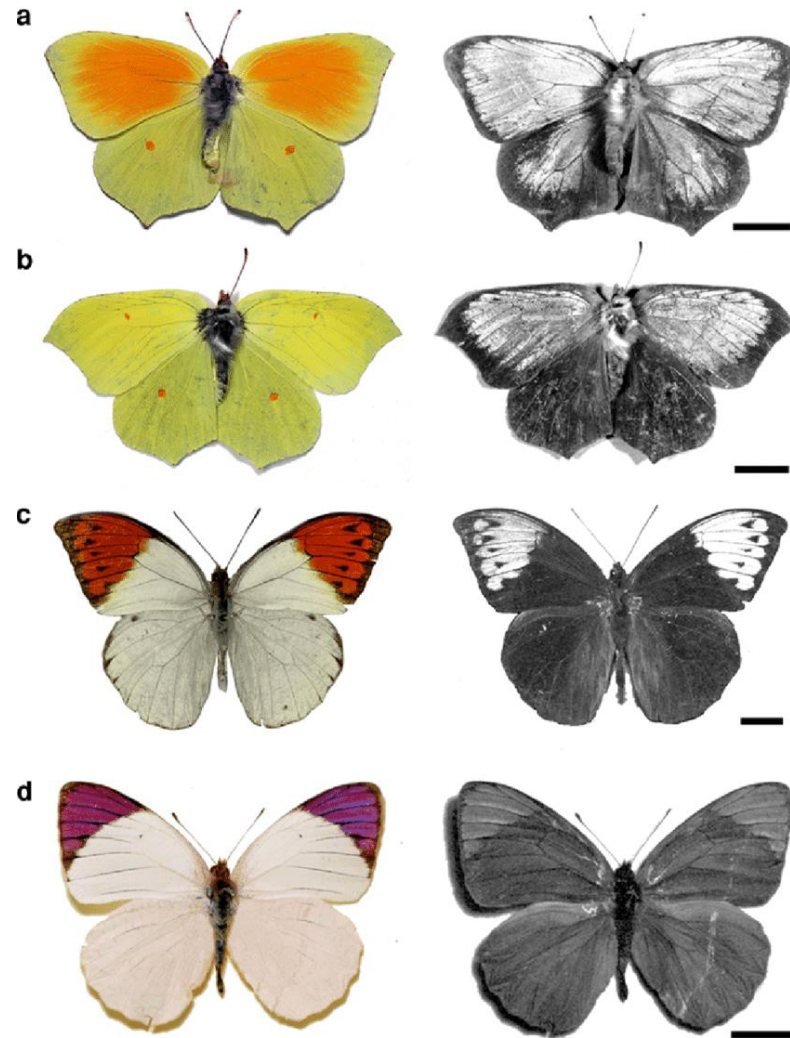
# Butterfly wings : how do they get their color?





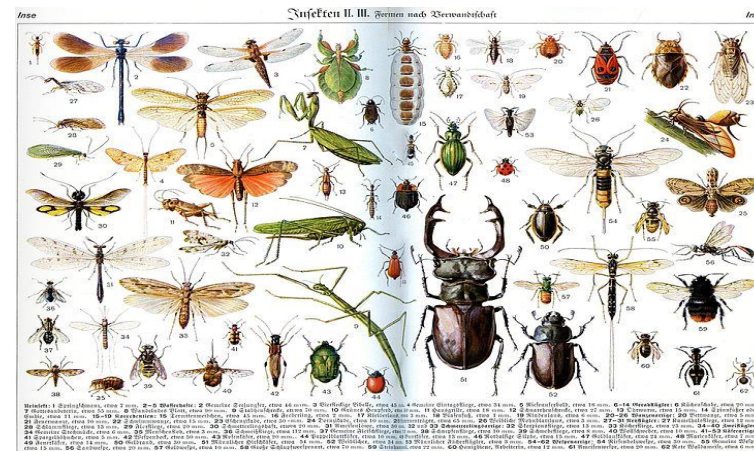
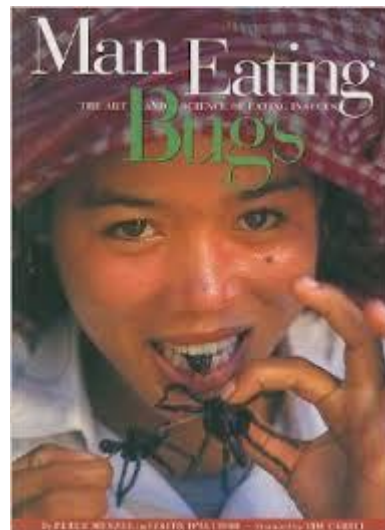


# Why do they need to be colourful?

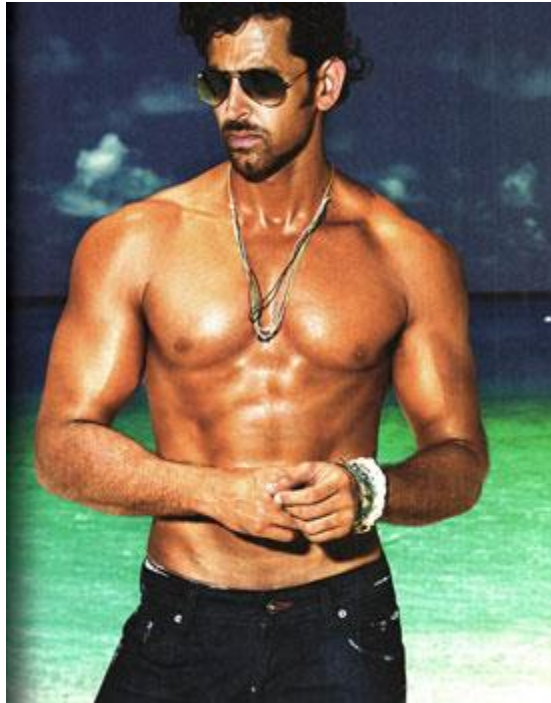


# Why do we care about tiny insects?

1. Similarity to humans
2. Medical research
3. Food production
4. Biodiversity
5. Agricultural pests
6. Insects as food!
7. Applications based on insects



# Finding a partner: Mate choice in humans



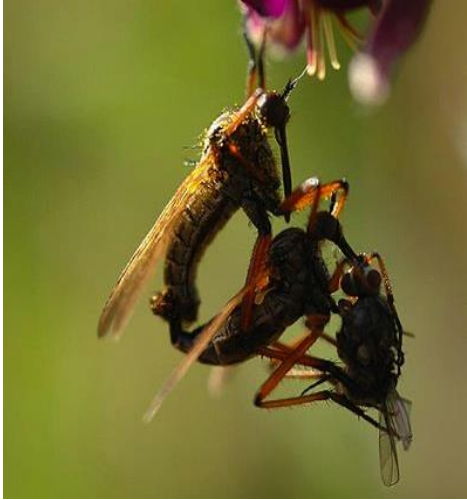
# Mate choice in animals



Why does a male peacock has such bright feathers?



Peacock spider

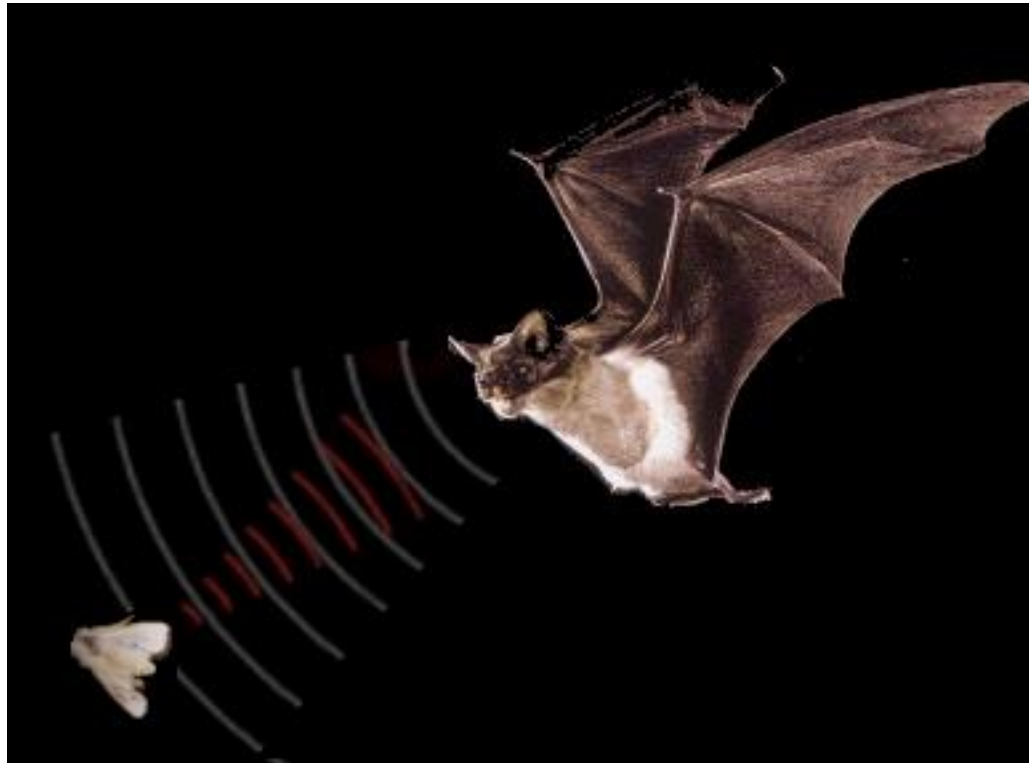


# Protection from enemies: Moths have ears, but why??



# Protection from enemies

Moths use ears to avoid bats!



# Learning and remembering: some wasps can remember faces!



# Insects learn quickly



# Camouflage



# Ant mimicry in spiders



Spider



# Why mimic an ant??!

ANT



Fly



Bug



Beetle



Cricket

# Ant mimicry in spiders

- Spiders in 13 families exhibit ant mimicry.
- Thought to be Batesian mimicry.
- Potential predators: sphecid and pompilid wasps, jumping spiders, mantids, birds, and lizards.

Indian ant mimics!



Borges et al. 2007

