ANT COLONY OPTIMIZAION: INSPIRATION

INSPIRATION

- **ACO was proposed by Marco Dorigo in 1992.**
- **The first version of ACO was called any systems**

STIGMERGY

- The main inspiration of the ACO algorithm comes from stigmergy

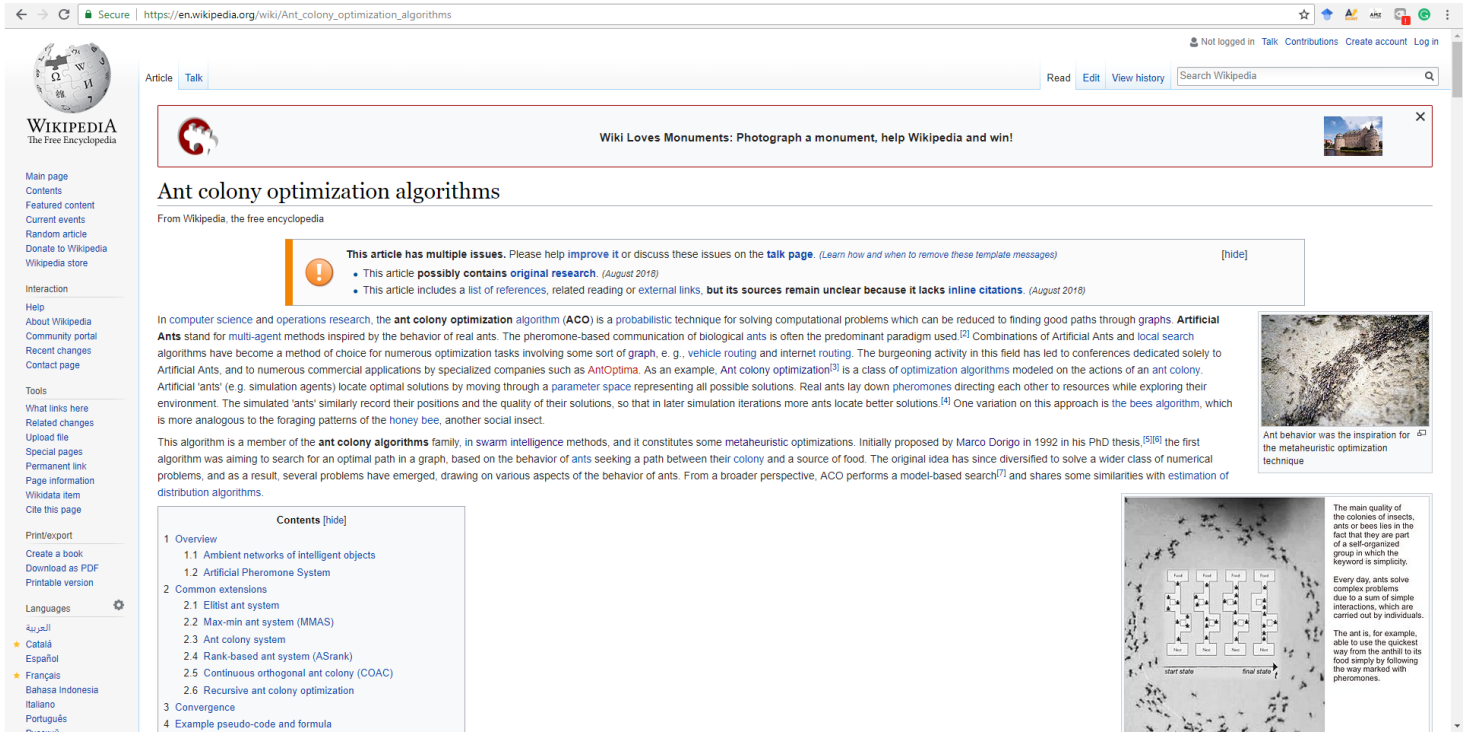
- Stigmergy refers to the interaction and coordination of organisms in nature by modifying the environment.

STIGMERGY

Termite colony

STIGMERGY

Wikipedia or Reddit websites



ANALOGY

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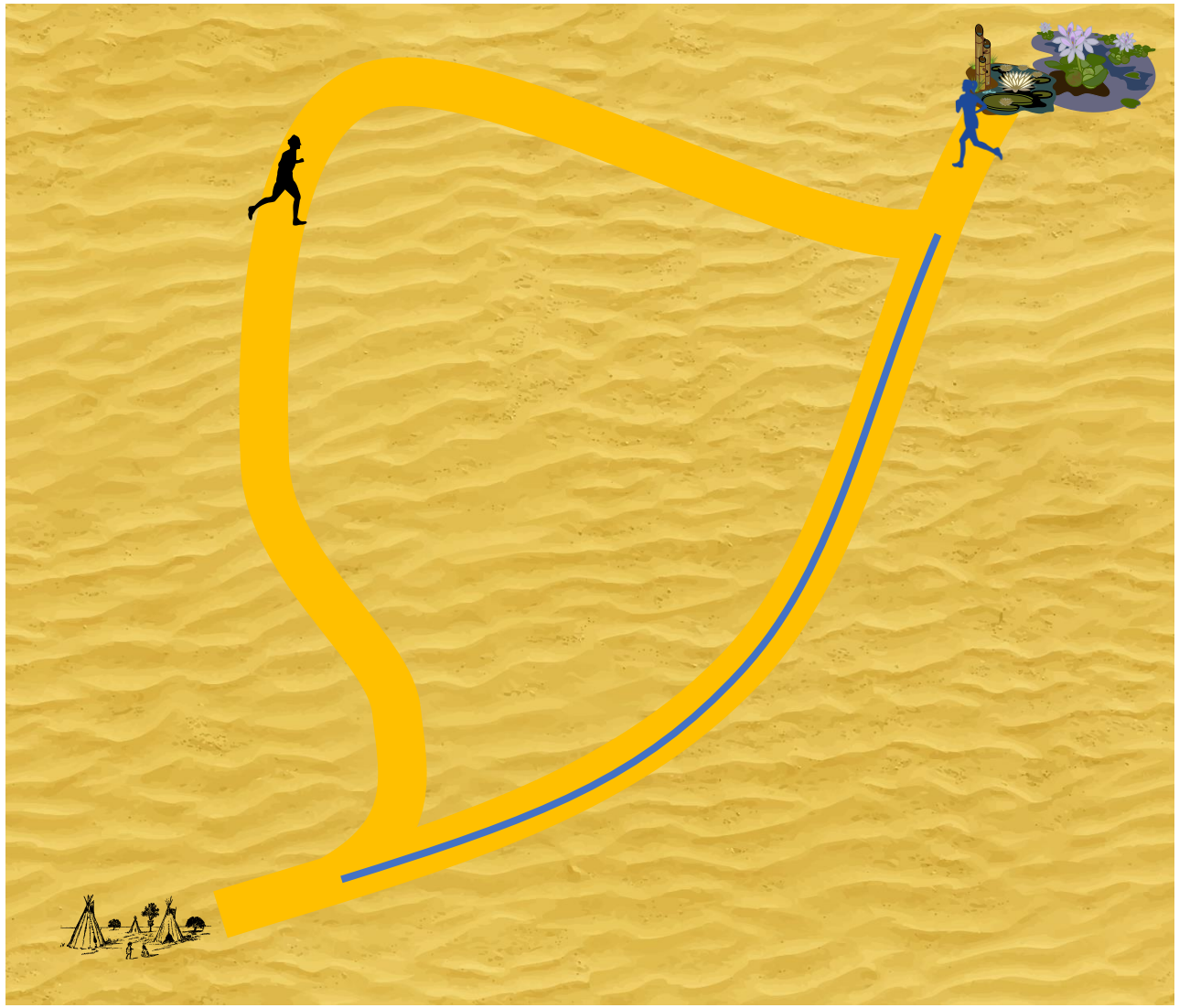

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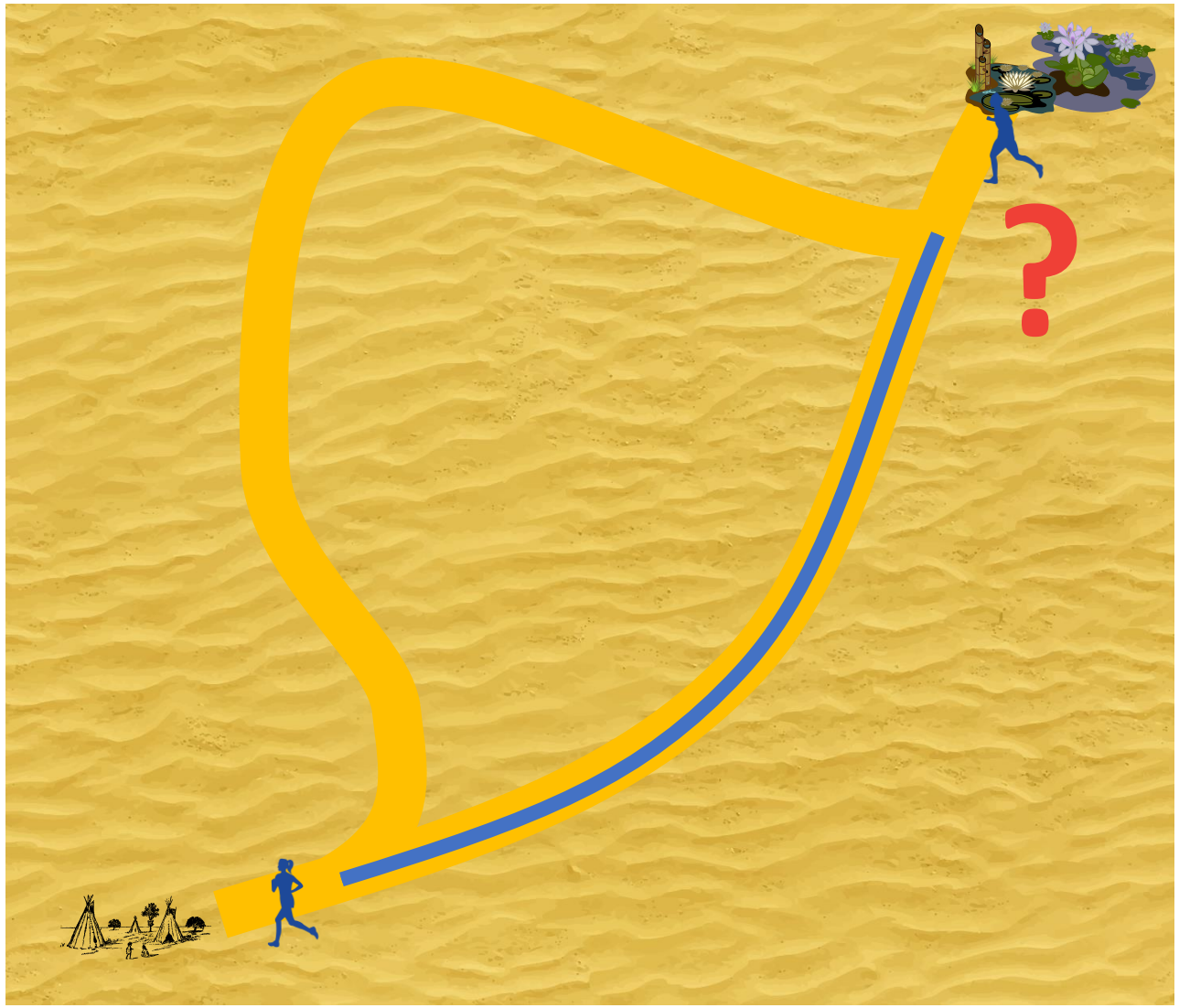

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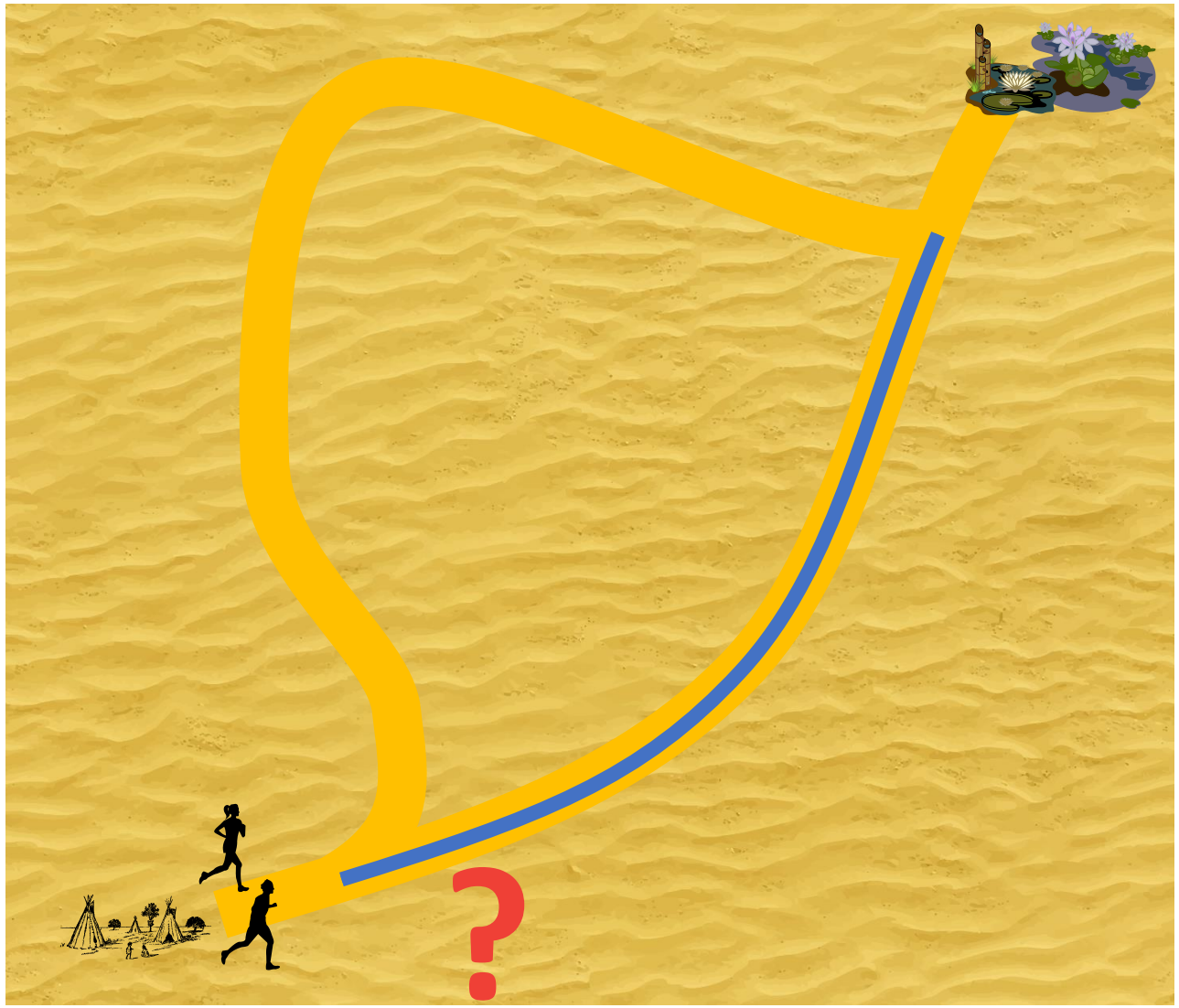

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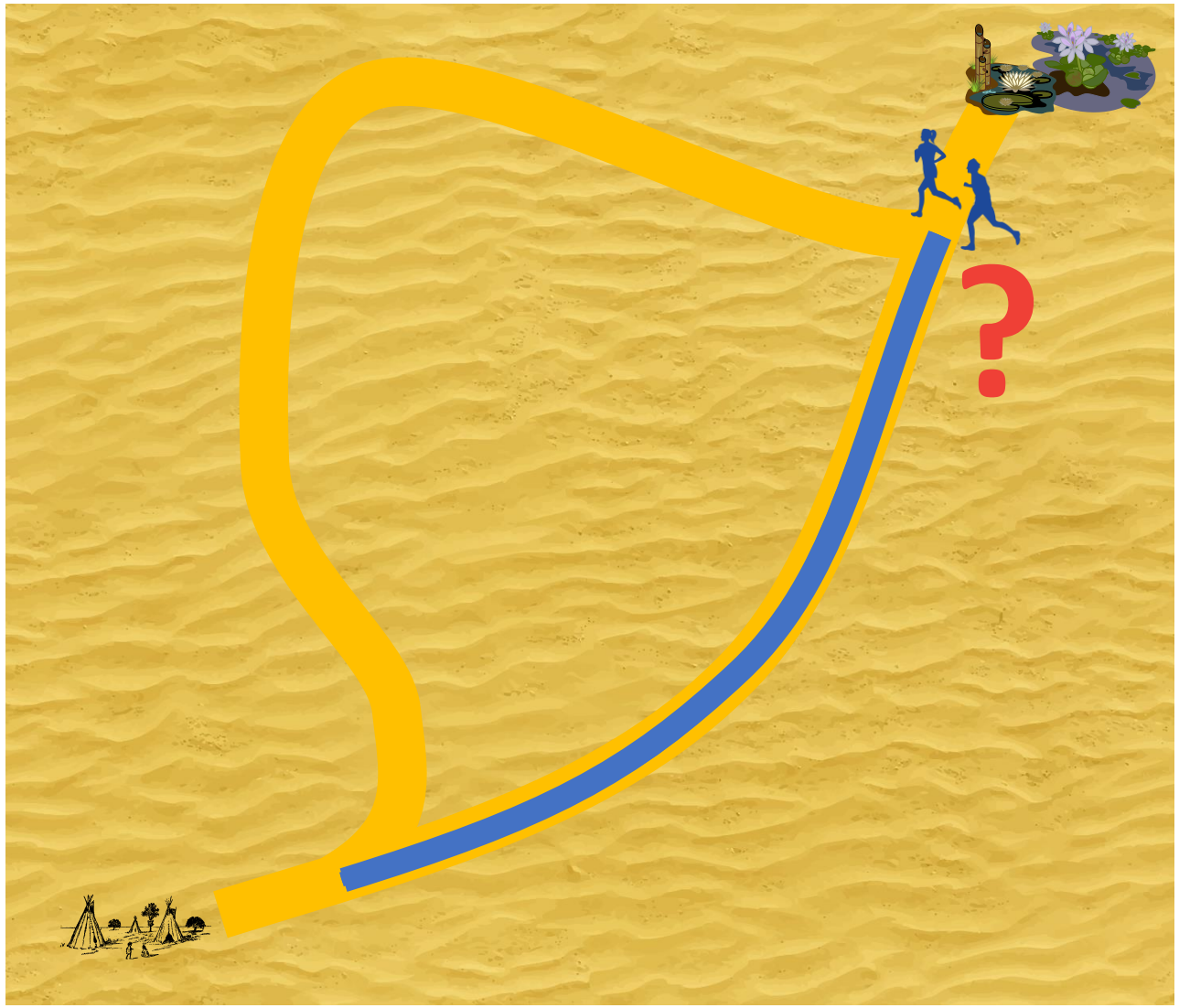
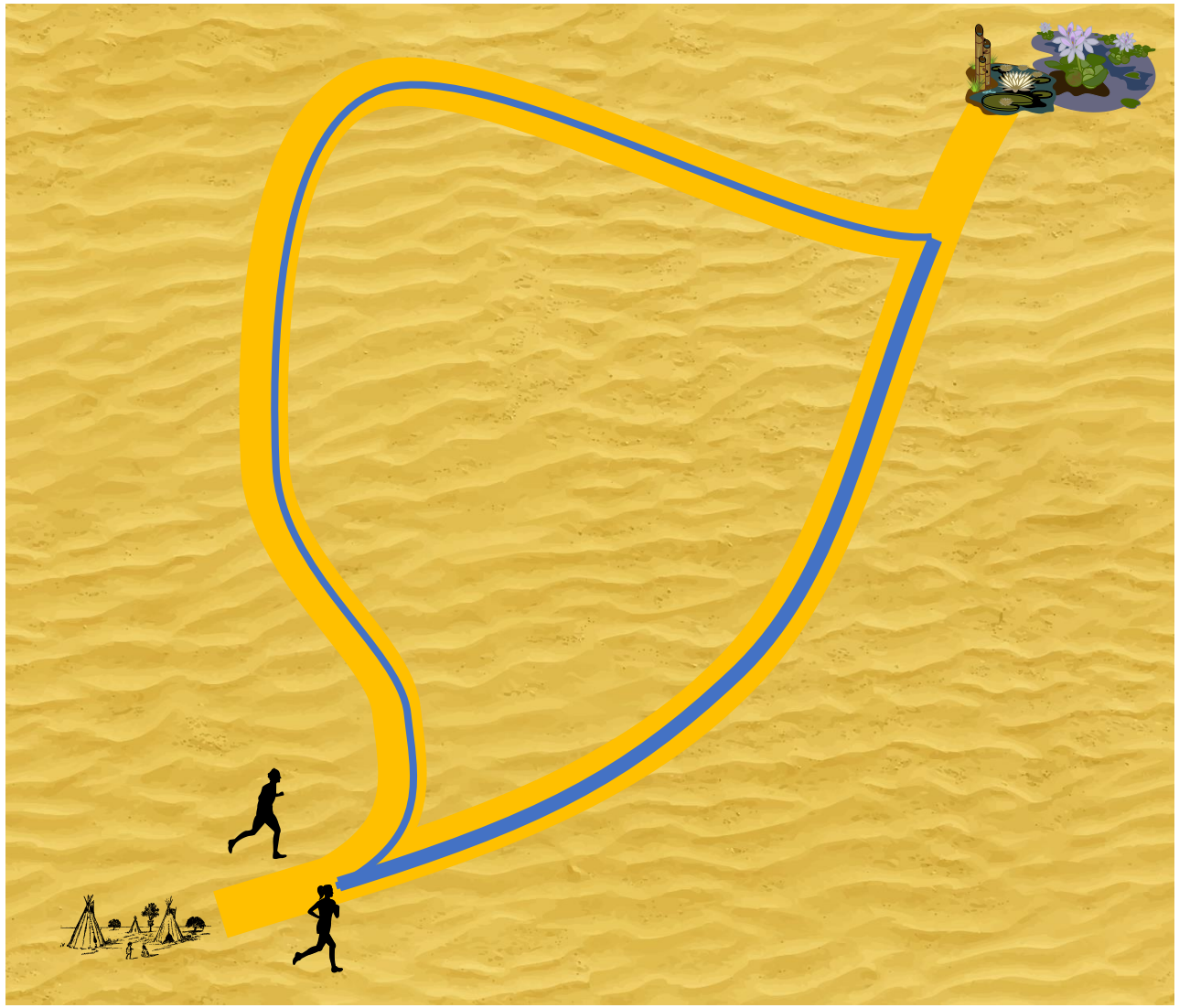


WHAT IF A WRONG PATH IS CHOSEN OR VAPORIZATION OCCURS



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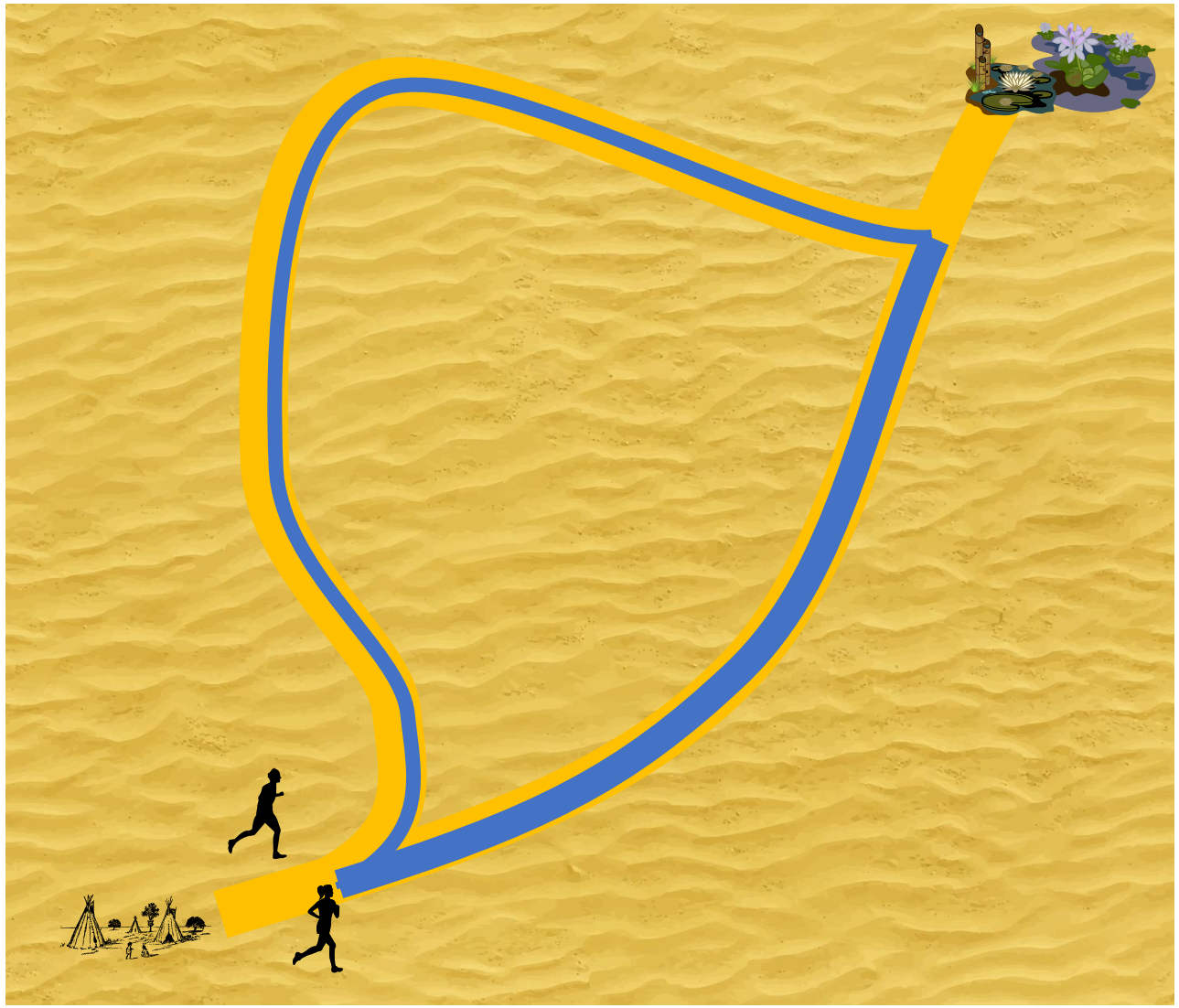

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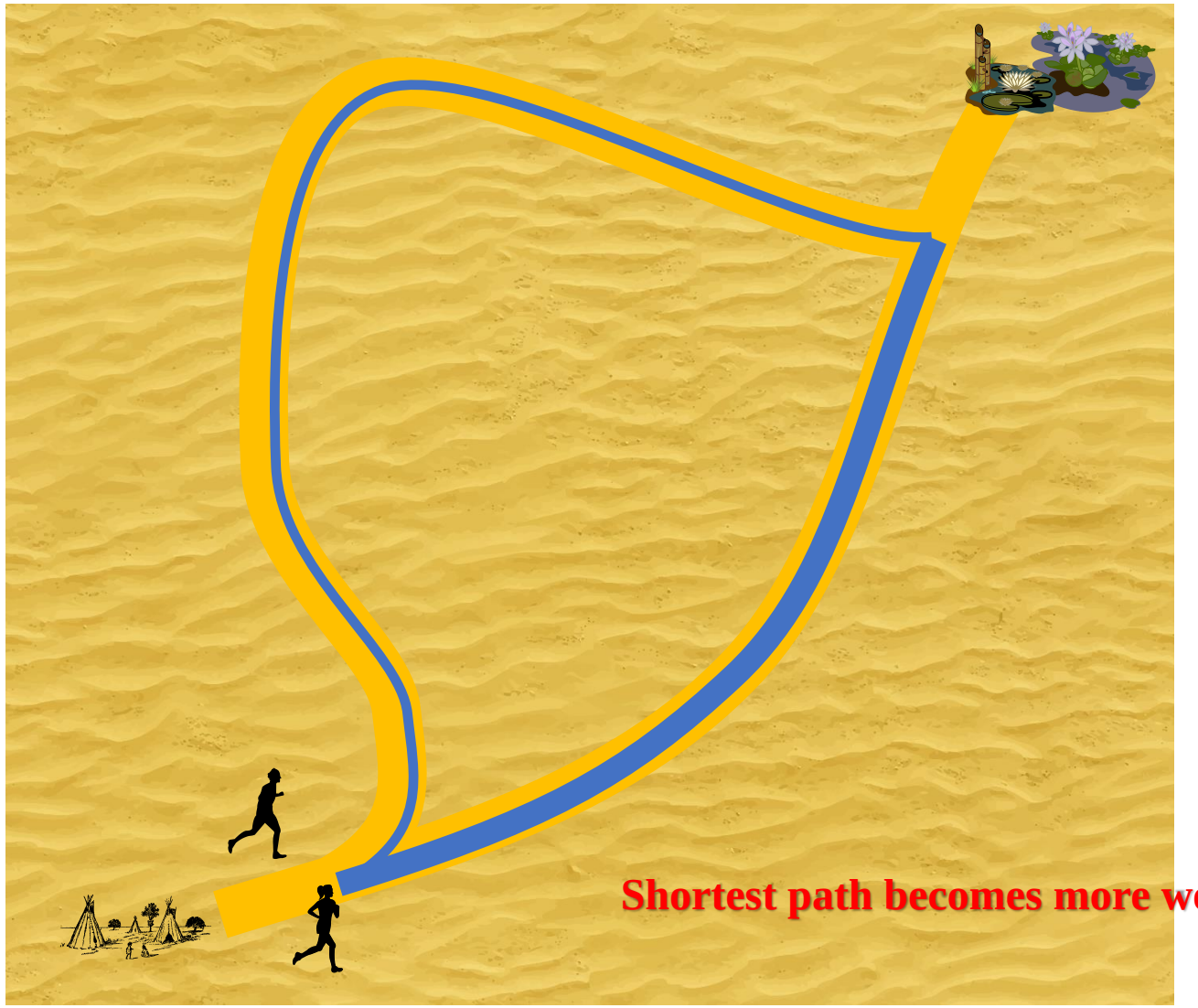
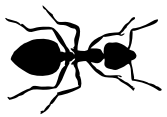
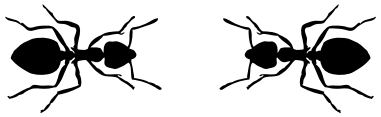


ANTS AND STIGMERGY

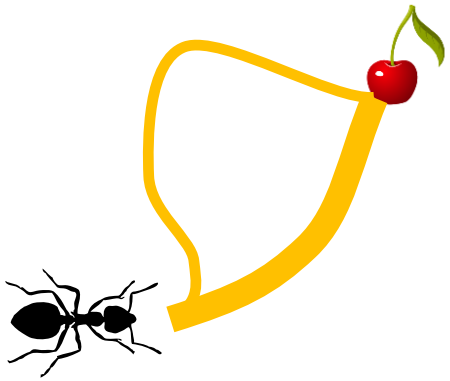
- Ants produces chemicals called **pheromone**



- They use **pheromone** to communicate. This is similar to **water in our analogy**.

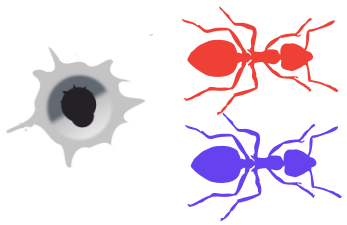


- They use a very similar technique as our analogy to find the shortest path from their nest to a source of food.



IMPORTANT FACT

- Ants are more likely to choose a path with higher pheromone.
- This means they make decision based on probabilities.



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ANT SYSTEM

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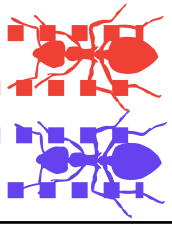

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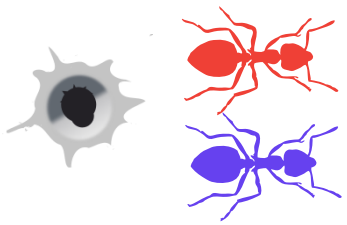

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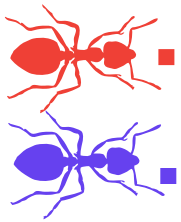

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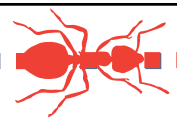

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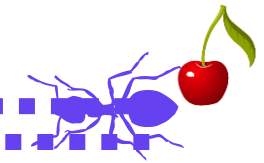

ANT SYSTEM

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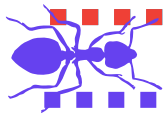

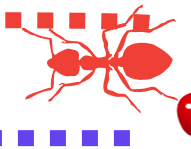

ANT SYSTEM

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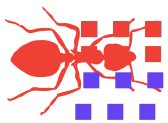

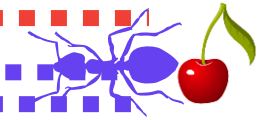

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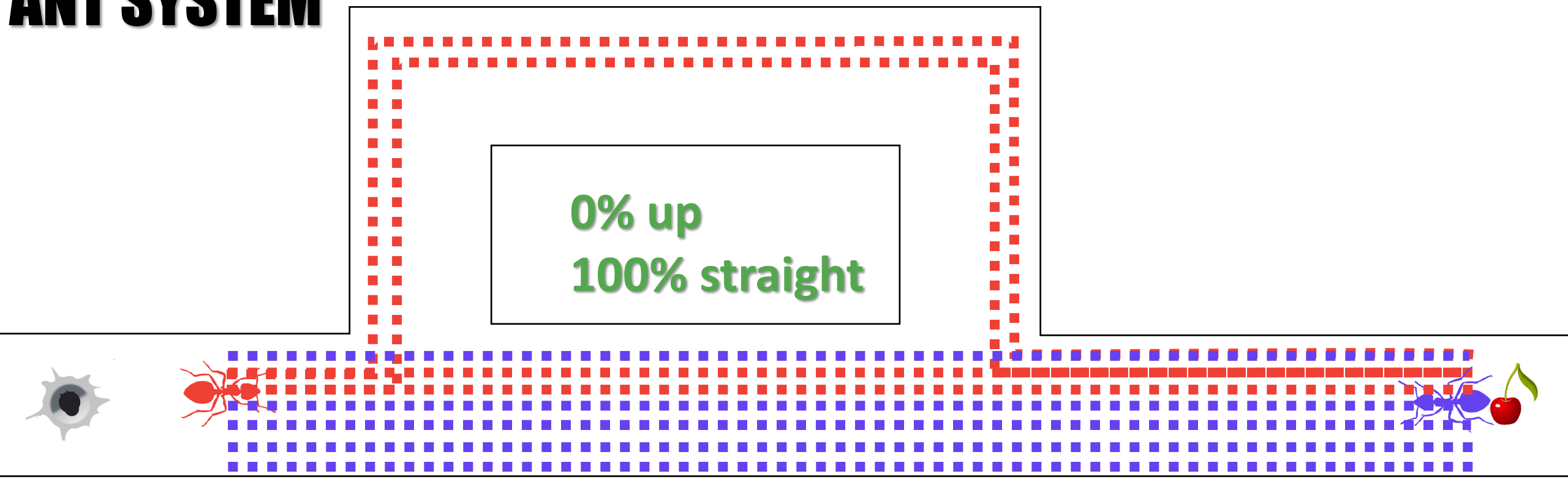

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