

• Happy Halloween
from **Engineering For Kids!**



Spy Sense: Secret Inkers!

Spies use secret messages to make contact and to share information.

This Halloween let's write our own spy messages and use chemical engineering to uncover the message and discover the secret message!

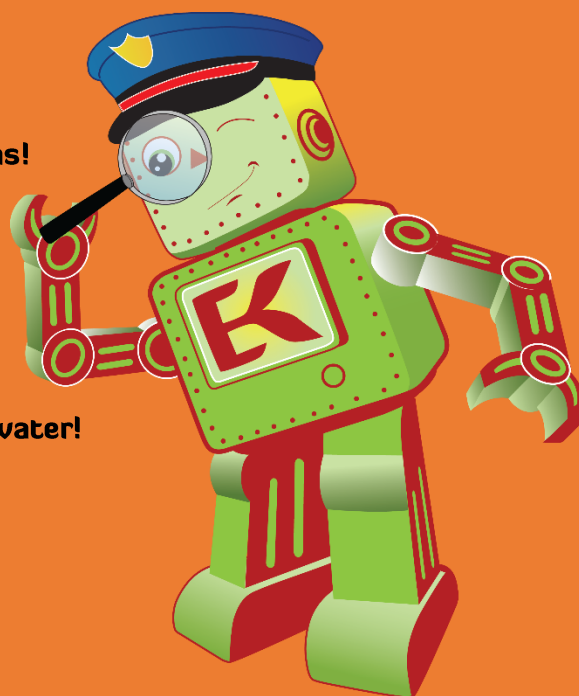
Fun Fact:

Secret ink was first used by the Ancient Greeks and Romans!

Their messages were written on hard boiled eggs!

Materials:

- Baking Soda
- Grape Juice Concentrate
 - * Buy the frozen one and let it melt, do not add any water!
- White Paper
- Q-tips
- Plastic Spoon Qty:2
- Water
- 2 Oz condiment cup Qty:2



Instruction:

Step one: How to make an invisible ink:

- Add 2 tbsp of baking soda to the condiment cup, then by using a different tablespoon, add 2tbsp of water to the baking soda. Now mix it well! Your invisible ink is ready!

Step two: Write your secret message:

- Use a Q-tips dipped in the invisible ink to write your secret message on a white paper. To make your secret message even more mysterious, you can use the attached Secret Code Key Sheet!
- Let the secret message dry out for 2-5 minutes

Step Three: Uncover your friend's secret messages:

- Use a different Q-tip, dip the Q-tip in the grape juice and then rub on the entire area where the secret message was written. The secret message should be revealed!
- Note: the message might disappear when the paper is dried out! You can rub more grape juice to reveal the message.

Science behind this experiment:

Grape juice is slightly acidic, The Baking Soda mix is a base. So, by adding the acidic solution, the color of the base solution changes and that is why we can reveal the secret message!

Secret Code Key Sheet

Share your secret message's pictures on Engineering For Kids Face book page and use the below hashtags for a chance to win a prize!

www.facebook.com/engineeringforkidsofyorkregion

[#engineeringforkidsofyorkregion](https://www.facebook.com/engineeringforkidsofyorkregion)

[#YRZombieHunt](https://www.facebook.com/engineeringforkidsofyorkregion)

Secret Code Spelling

A 💧	B ♋	C ∞	D ~	E 😊	F !
G #	H *	I ?	J +	K =	L ^
M ✓	N ☒	O ⊘	P ☾	Q ◇	R ↑
S ▲	T ▭	U ♥	V ⚡	W ∴	X ▵
Y ⌈	Z ⊕				

