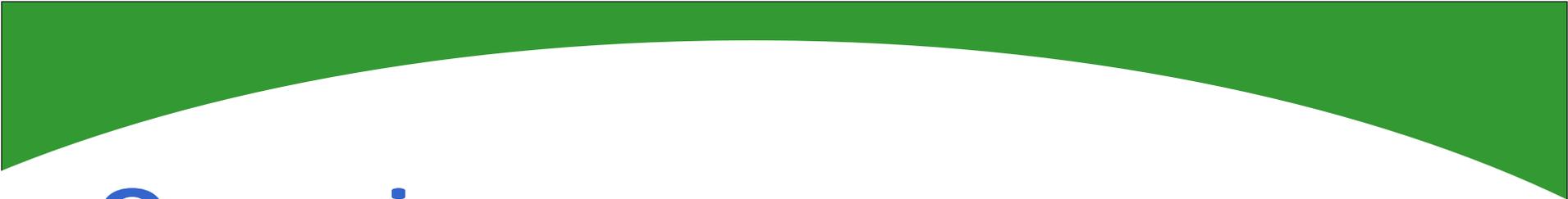




It's All Code

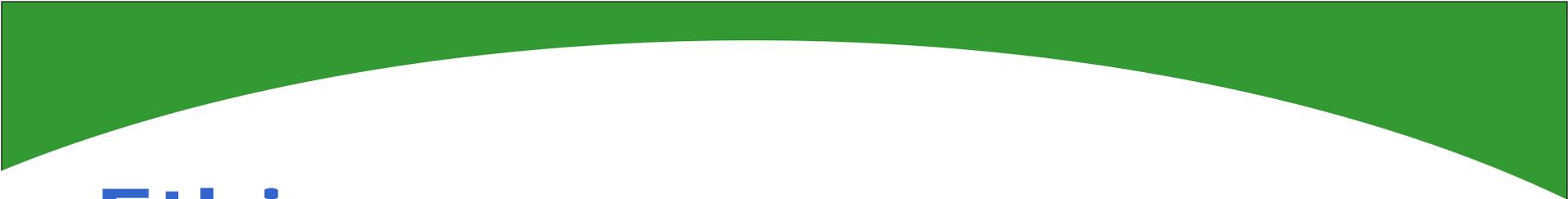
Tim Preuss

Information Technology



Overview

- **What school subject are you missing by attending this session?**
 - **Any Administration Details**
 - **30 minute class**
 - **Code messages using Microsoft Word**
 - **Code messages using Microsoft Excel**
 - **Portable Care and feeding**
- 



Ethics

- Encryption must be done in accordance with local, state and federal law.
 - We may not deceitfully lie, betray, slander, nor defame our neighbor, but defend him, speak well of him, and put the best construction on everything.
 - Questions
- 



Encryption 1

- Identify a partner
 - Open Microsoft Word
 - Type a secret message
 - Do **NOT** let your partner see the message!
 - Change the font to Wingdings or Symbol
- 



Encryption 1

- Exchange places with your partner
 - Decode the message
 - Questions
- 



Encryption 2 Design

- **Julius Caesar**
 - **Around 50 BC had a problem**
 - **Need to send secret military messages**
 - **Most people illiterate**
- 



Encryption 2 Design

- **Caesar Shift Cipher**
 - **Replace every letter with three letter down the alphabet.**
 - **Circle to the beginning from the end**
 - **Use three letter shift**
- 

Encryption 2

- **Microsoft Excel**
- **CODE(A7) gives the ASCII character code**
- **CHAR(A9) gives the ACSII character from the ASCII code**
- **Note the difference between lower and upper case characters.**



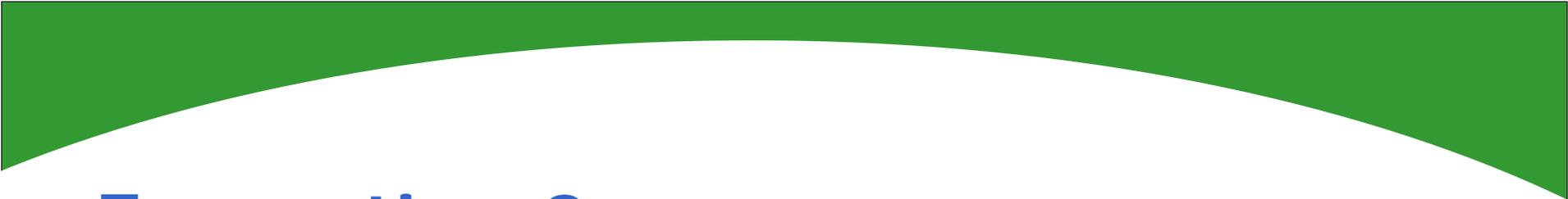
Encryption 2

- Your turn
 - In cell A22, type a secret message.
 - Now we need to separate the letters in different cells.
 - If necessary, Click on cell A22
 - Select Data | Text to Columns
 - Select Fixed Width box
- 



Encryption 2

- **Click between each letter and space in your message.**
 - **Press space in all the cells that are empty in your message.**
 - **Select finish**
- 



Encryption 2

- Change to sheet 2
 - Change the shift number
 - Exchange places with your partner
 - Decode the message
 - Questions
- 

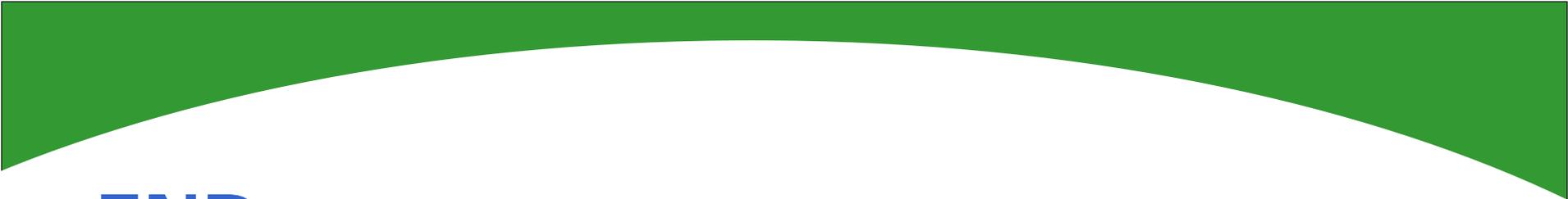


Encryption Problems

- **Caesar Shift Cipher uses private key encryption**
 - **How to safely exchange private keys**
 - **Diffie-Hellman solution is public – private key encryption**
 - **RFC 2631 describes Diffie – Hellman**
- 

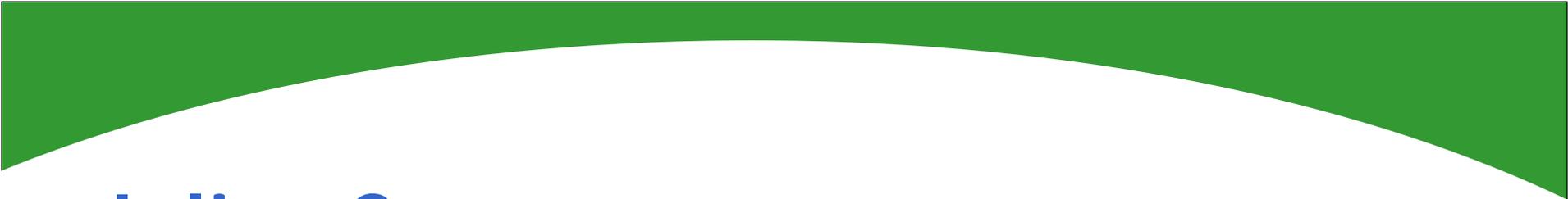
References

- <http://jfg.girlscouts.org/GS/insignia/Badges/tech/computerfun.htm>
- <http://www.trincoll.edu/depts/cpsc/cryptography/caesar.html>
- <http://cse.unl.edu/~bholley/Cypher%20Tutorial.html>
- <http://www.jimprice.com/jim-asc.htm>
- <http://www.ietf.org/rfc/rfc2631.txt>



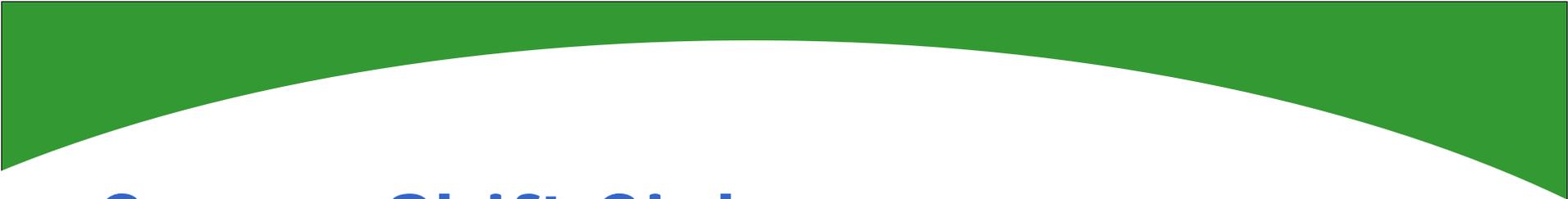
END





Julius Caesar

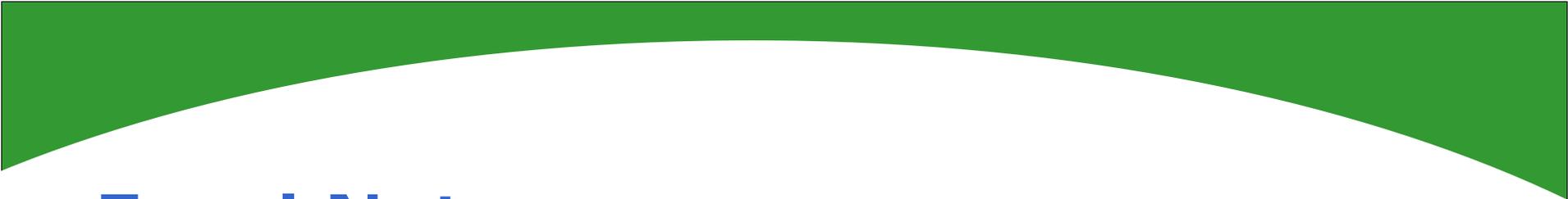
- **Julius Caesar encryption situation**
 - Secret military messages to send
 - 50 AD
 - ENIAC 1947
 - ASCII 1968 standard
 - What to do?
 - **Answer**
 - Caesar Shift Cipher
- 



Caesar Shift Cipher

- **Word**
- **Excel**
 - Calculate ASCII Value
 - Add shift numeric
 - Send message



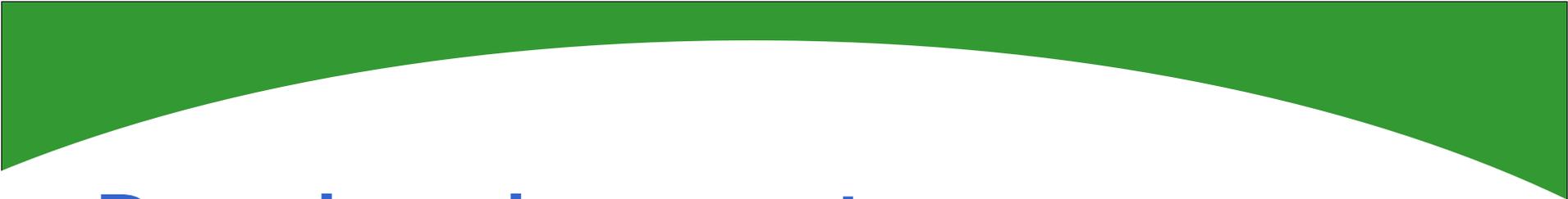


Excel Notes

- **=CODE(A1)** give ASCII code give ASCII character for cell A1 character
 - **=CHAR(A2)** gives ASCII character for cell A2 number
 - You may not generate a number greater than 255
- 

Code a document

- Put each letter of your secret message in a single Excel cell
- Input the function to generate ASCII code, =CODE()
- Add the required number to the code
- Generate the new cipher, =CHAR()
- Copy the cipher into Word
- Destroy the spreadsheet



Decode a document

- Move five chairs to the right
- Decode the message



Why Code?

- Business Secrets
- Why do people need to send secret messages?
- How can messages be coded?

