



Winter Holidays Pixel Art in Microsoft Excel

Project Based Learning
for Middle School
(Grades 6-8)

Includes:

- Microsoft Excel Tutorial
- Google Sheets Tutorial
- Lessons with Rubric
- Editable MS Excel Files
- 6 Additional Pictures and Legends



Created by: Innovations in Technology

Creating Pixel Art in Microsoft Excel or Google Sheets

Teacher & Student Resources

Lesson Overview

Need a fun way to introduce Microsoft Excel or Google Sheets to upper elementary or middle school students? This great lesson lets students learn the basics of Microsoft Excel (or Google Sheets) as they create pixel art using the program. First, they'll create a quick pixel art from a given example and then they'll create their own! These are also fun lessons to use if you just need something for a one day lesson.

I've used this with 7th and 8th graders who used their free time to create even more art! I hope your students have as much fun as mine did learning Excel or Google Sheets!

Materials Required

- Computers with Internet access for each student (or pair of students)
- Microsoft Excel or Google Sheets

Files Included

- Teacher & Student Resources
- Introduction to Pixel Art Lesson (Microsoft Excel project) with tutorial
- Introduction to Pixel Art Lesson (Google Sheets project) with tutorial
- Legends and Sample Pictures for 6 Additional Pictures
- Full Excel (2016) editable files for all pixel art projects (note: these can be opened in Google Sheets too)

Approximate Lesson Duration:

- 1-2 (50 minute) class period(s) (but your students will probably want to work on it longer!)

Teacher Resources

Videos

- A Pixel Art Documentary (video: 11:00): <https://www.youtube.com/watch?v=7mqAZ06dwKU>
- How to Make Pixel Art – Tom Deacon tutorial (video: 1:38): <https://www.youtube.com/watch?v=ify6HcN-HbU>
- Create Pixel Art – Flappy Bird tutorial: <https://www.youtube.com/watch?v=nr6d3EmnaqA>

Extension Activities and Challenges

- How to Create Pixel Art in MS Excel by Tracing Another Image: <https://www.labnol.org/software/spreadsheet-art-painting-with-excel/6074/>
- How to Make Pixel Art Animations in MS Excel: <https://computers.tutsplus.com/tutorials/animated-spreadsheets-how-to-make-pixel-animation-in-excel--cms-21355>
- More Great Pixel Art Lessons: <https://www.teacherspayteachers.com/Store/Innovations-In-Technology/Search:pixel+art>

Student Resources

Learn More About Pixel Art

- The Past, Present and Future of Pixel Art: <https://idesigni.co.uk/blog/past-present-future-pixel-art/>
- What is Pixel Art: <https://design.tutsplus.com/articles/what-is-pixel-art--cms-21759>

Tutorials

- Microsoft Excel Tutorials: <https://www.gcflearnfree.org/excel2016/>
- Google Sheets Tutorials: <https://www.gcflearnfree.org/googlespreadsheets/>

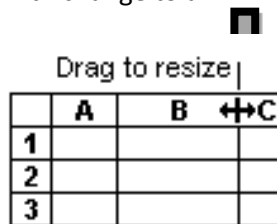
Note: All links were working and student appropriate at the time of publication. However, the Internet changes frequently and it is best to re-check sites prior to recommending them to students.

Creating Pixel Art in Microsoft Excel

Follow these steps to create the sample pictures.

Step 1: Set up Microsoft Excel.

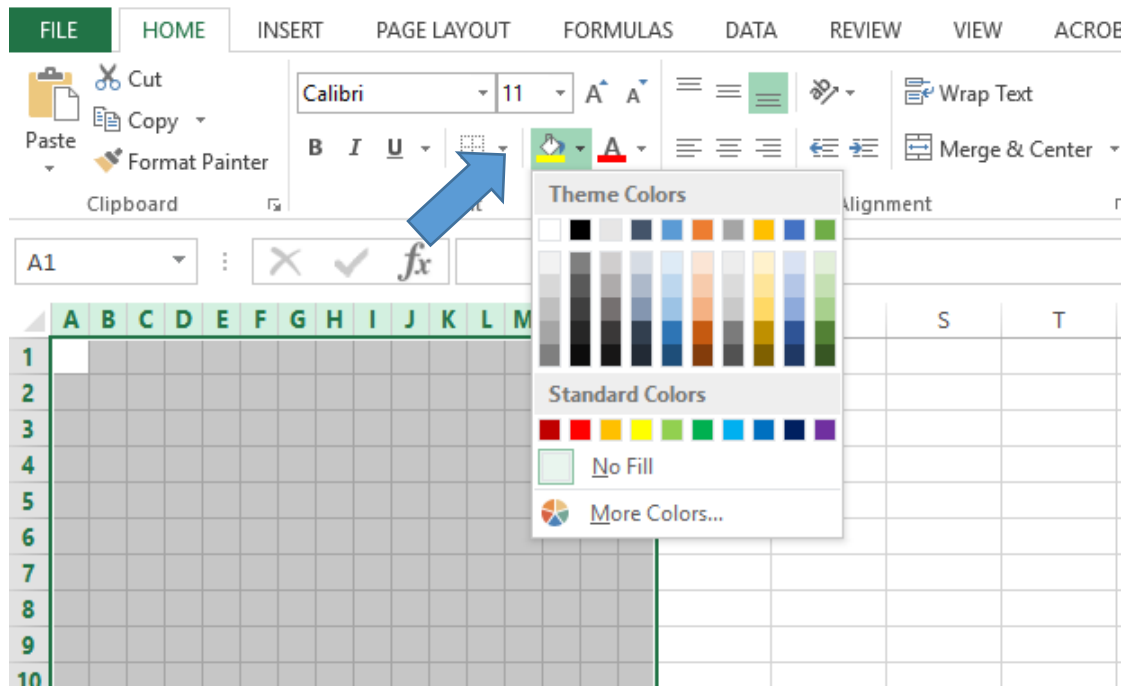
1. Open Microsoft Excel by clicking on the program from the Start menu and choosing “Blank Workbook” by clicking on it.
2. Change your column width so that the cells are square rather than rectangular. Click on row A at the very top and while holding the mouse, drag across the column letters to highlight as many as you think you will need for your picture (usually going up through AZ is enough).
3. Roll your mouse up to where the column heading letters are, in between any column. Your cursor will change to a “+”.



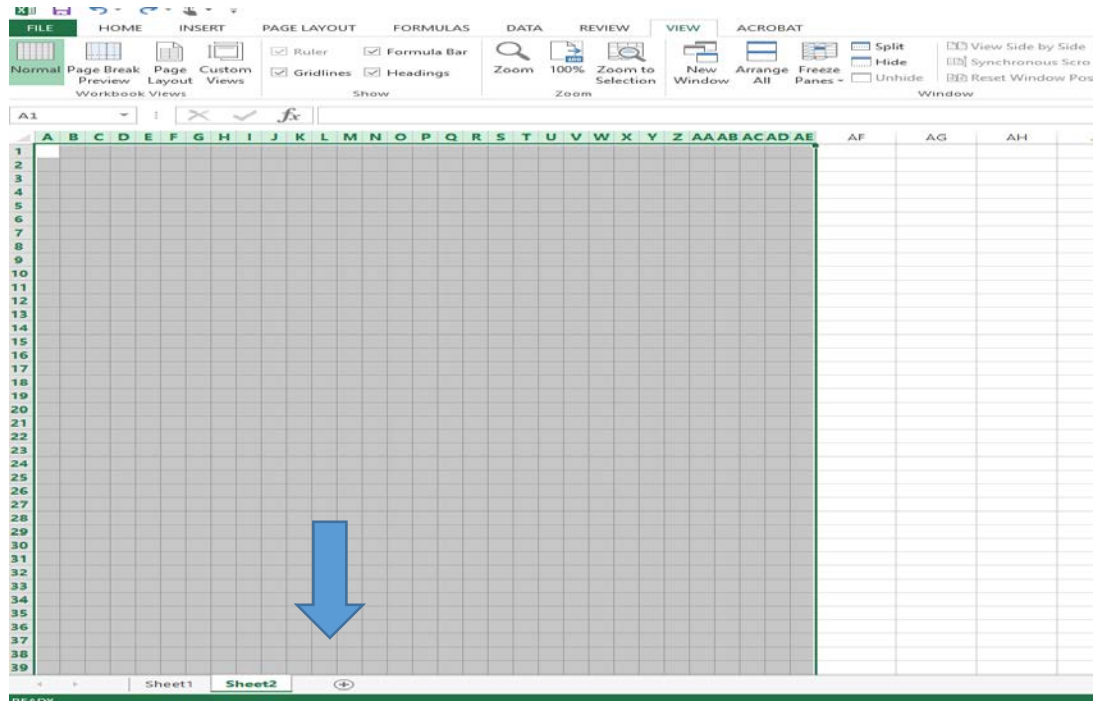
4. Drag one column until it is more narrow and is a square. This will make all the highlighted columns the same size and square.
5. Now you are ready to start your picture!

Step 2: Create a picture using the information in the sample.

1. Use the legend below to format the correct cells with the correct color. Use the Fill Color option from the menu to choose your color (it looks like a little paint bucket):



2. Create each picture on a separate sheet of the same file. To change to another sheet, go to the bottom of the worksheet and click on the + sign beside Sheet 1 to add another sheet:



Sample Picture #1:

Red: D6-D10, E5-E10, F6-F10

Yellow: G6-G10, H5-H10, I6-I10

Green: J6-J10, K5-K10, L6-L10

Blue: M6-M10, N5-N10, O6-O10

Purple: P6-P10, Q5-Q10, R6-R10

Black: E4, F3-F5, F14, F20, G4, G5, G14, G20, H14, H17, H20, I14, I17, I20, J14, J17, J20, K14, K17, K20, L14, L17, L20, M14, M17, M20, N14, N17, N20, O14.

Orange: H4, I3-I5, J4, J5

Light Blue: K4, L3-L5, M4, M5

Brown: N4, O3-O5, P4, P5

Light Green: Q4, R3-R5, S4-S9

Gold (Dark Yellow): D11-D23, E11-D23, F11-F13, F15-F19, F21-F23, G11-G13, G15-G19, G21-G23, H11-H13, H15, H16, H18, H19, H21-H23, I11-I13, I15, I16, I18, I19, I21-I23, J11-J13, J15, J16, J18, J19, J21-J23, K11-K13, K15, K16, K18, K19, K21-K23, L11-L13, L15, L16, L18, L19, L21-L23, M11-M13, M15, M16, M18, M19, M21-M23, N11-N13, N15, N16, N18, N19, N21-N23, O11-O13, O15-O23, P11-P23, Q11-Q23, R11-R23, S10-S22, T9-T21.

Sample Picture #2:

Black: C2-C18, D2, D6, D18, E2, E6, E9, E12, E15, E18, F2, F6, F18, G2, G6, G9, G12, G15, G18, H2, H6, H18, I2, I6, I9, I12, I15, I18, J2, J6, J18, K2, K6, K9, K12-K15, K18, L2, L6, L18, M2-M18.

Light Green: D3-D5, E3-E5, F3-F5, G3-G5, H3-H5, I3-I5, J3-J5, K3-K5, L3-L5.

Medium Blue: D7-D17, E7, E8, E10, E11, E13, E14, E16, E17, F7-F17, G7, G8, G10, G11, G13, G14, G16, G17, H7-H17, I7, I8, I10, I11, I13, I14, I16, I17, J7-J17, K7, K8, K10, K11, K16, K17, L7-L17.

Step 3: Create your own picture! Now it's time to try to draw something of your own. When you finish your drawing, create a legend that lists the cell numbers and their colors (like the samples above) so that someone else would be able to re-create your drawing. Create your drawing on a new Sheet in Microsoft Excel (but still in the same file with your samples).

Step 4: Save your work and submit for grading following your teacher's instructions.

Grading

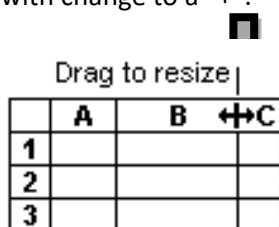
Expectations	Possible Points
Accurately creates the two sample drawings (15 points each)	30
Creates a new, creative pixel art drawing	40
New drawing includes an accurate color legend	40
TOTAL	100

Creating Pixel Art in Google Sheets

Follow these steps to create the sample pictures.

Step 1: Set up Google Sheets.

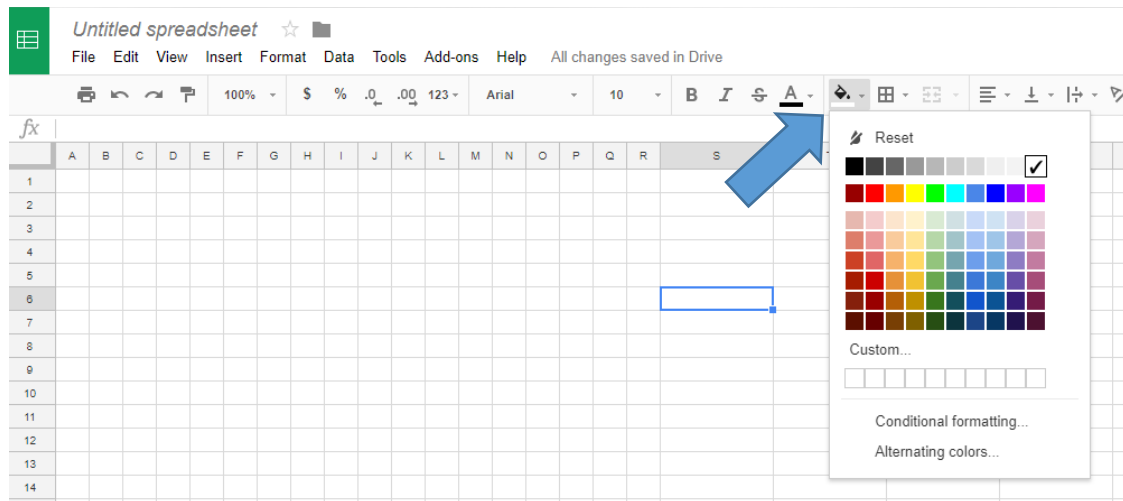
1. Open Google Sheets by clicking on the Google Apps menu icon at the top right of your screen in a Chrome browser window. Make sure you are signed in to your Google account. Click on Google Sheets.
2. When the program opens, choose “Blank” at the top left under Start a New Spreadsheet by clicking on it.
3. Change your column width so that the cells are square rather than rectangular. Click on row A at the very top and while holding the mouse, drag across the column letters to highlight as many as you think you will need for your picture (usually going up through AZ is enough).
4. Roll your mouse up to where the column heading letters are, in between any column. Your cursor will change to a “+”.



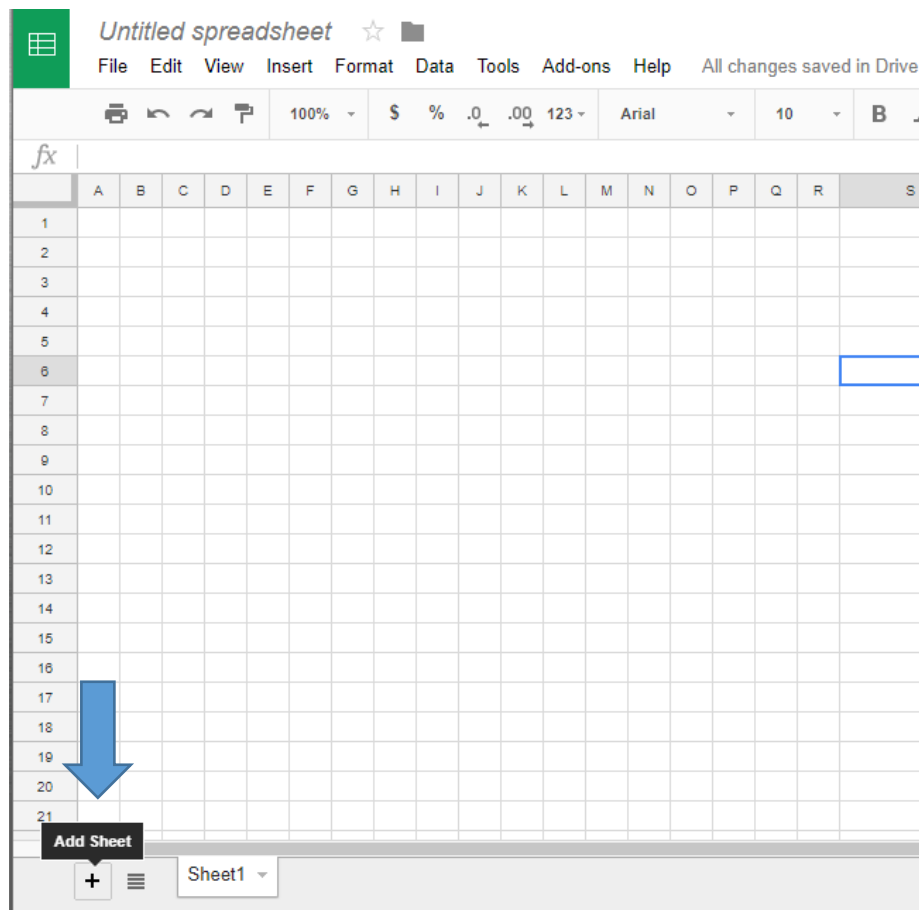
5. Drag one column until it is more narrow and is a square. This will make all the highlighted columns the same size and square.
6. Now you are ready to start your picture!

Step 2: Create a picture using the information in the sample.

1. Use the legend below to format the correct cells with the correct color. Use the Fill Color option from the menu to choose your color (it looks like a little paint bucket):



2. Create each picture on a separate sheet of the same file. To change to another sheet, go to the bottom of the worksheet and click on the + sign beside Sheet 1 to add another sheet:



Sample Picture #1:

Red: D6-D10, E5-E10, F6-F10

Yellow: G6-G10, H5-H10, I6-I10

Green: J6-J10, K5-K10, L6-L10

Blue: M6-M10, N5-N10, O6-O10

Purple: P6-P10, Q5-Q10, R6-R10

Black: E4, F3-F5, F14, F20, G4, G5, G14, G20, H14, H17, H20, I14, I17, I20, J14, J17, J20, K14, K17, K20, L14, L17, L20, M14, M17, M20, N14, N17, N20, O14.

Orange: H4, I3-I5, J4, J5

Light Blue: K4, L3-L5, M4, M5

Brown: N4, O3-O5, P4, P5

Light Green: Q4, R3-R5, S4-S9

Gold (Dark Yellow): D11-D23, E11-D23, F11-F13, F15-F19, F21-F23, G11-G13, G15-G19, G21-G23, H11-H13, H15, H16, H18, H19, H21-H23, I11-I13, I15, I16, I18, I19, I21-I23, J11-J13, J15, J16, J18, J19, J21-J23, K11-K13, K15, K16, K18, K19, K21-K23, L11-L13, L15, L16, L18, L19, L21-L23, M11-M13, M15, M16, M18, M19, M21-M23, N11-N13, N15, N16, N18, N19, N21-N23, O11-O13, O15-O23, P11-P23, Q11-Q23, R11-R23, S10-S22, T9-T21.

Sample Picture #2:

Black: C2-C18, D2, D6, D18, E2, E6, E9, E12, E15, E18, F2, F6, F18, G2, G6, G9, G12, G15, G18, H2, H6, H18, I2, I6, I9, I12, I15, I18, J2, J6, J18, K2, K6, K9, K12-K15, K18, L2, L6, L18, M2-M18.

Light Green: D3-D5, E3-E5, F3-F5, G3-G5, H3-H5, I3-I5, J3-J5, K3-K5, L3-L5.

Medium Blue: D7-D17, E7, E8, E10, E11, E13, E14, E16, E17, F7-F17, G7, G8, G10, G11, G13, G14, G16, G17, H7-H17, I7, I8, I10, I11, I13, I14, I16, I17, J7-J17, K7, K8, K10, K11, K16, K17, L7-L17.

Step 3: Create your own picture! Now it's time to try to draw something of your own. When you finish your drawing, created a legend that lists the cell numbers and their colors (like the samples above) so that someone else would be able to re-create your drawing. Create your drawing on a new Sheet in Google Sheets (but still in the same file with your samples).

Step 4: Save your work and submit for grading following your teacher's instructions.

Grading

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New drawing includes an accurate color legend	40
TOTAL	100

Contents

Example Pictures and Legends

Easy Picture 1: Christmas Package

Easy Picture 2: Stocking

Easy Picture 3: Menorah

Additional Pictures and Legends

Picture 1: Candy Cane

Picture 2: Christmas Packages 2

Picture 3: Christmas Stocking

Picture 4: Wreath

Picture 5: Christmas Tree

Picture 6: Gingerbread Man

Legend – EASY Picture 1

Red: L5-L8, M6-M8, N7, N8, O8, P8, Q7, Q8, R6-R8, S5-S8

Light Orange: O9-O18, P9-P18

Turquoise: J9-J18, K9-K18, L9-L18, M9-M18, N9-N18, Q9-Q18, R9-R18, S9-S18, T9-T18, U9-U18

Legend – EASY Picture 2

White 5%: N3-N8, O3-O8, P3-P8, Q3-Q8, R3-R8, S3-S8, T3-T8, U3-U8 (then highlight this section and add an outside border in black)

Red: I20-I22, J19-J23, K18-K24, L17-L24, M16-M24, N9-N24, O9-O24, P9-P24, Q9-Q24, R9-R24, S9-S24, T9-T23, U9-U22

Legend – EASY Picture 3

Blue: A1-A16, B1-B16, C1-C16, D1-D16, E1-E5, E16, F1-F14, F16, G1-G5, G14, G16, H1-H12, H14, H16, I1-I5, I12, I14, I16, J1-J10, J12, J14, J16, K1-K4, L1-L10, L12, L14, L16, M1-M5, M12, M14, M16, N1-N12, N14, N16, O1-O5, O14, O16, P1-P14, P16, Q1-Q5, Q16, R1-R16, S1-S16, T1-T16, U1-U16

Yellow: E6, G6, I6, K5, M6, O6, Q6

White: E7, E8, G7, G8, I7, I8, K6, K7, M7, M8, O7, O8, Q7, Q8

Light Orange: E9-E15, F15, G9-G13, G15, H13, H15, I9-I11, I13, I15, I19, J11, J13, J15, J18, J19, K8-K19, L11, L13, L15, L18, L19, M9-M11, M13, M15, M19, N13-N15, O9-O13, O15, P15, Q9-Q15

Brown: A17-A21, B17-B21, C17-C21, D17-D21, E17-E21, F17-F21, G17-G21, H17-H21, I17, I18, I20, I21, J17, J20, J21, K20, K21, L17, L20, L21, M17, M18, M20, M21, N17-N21, O17-O21, P17-P21, Q17-Q21, R17-R21, S17-S21, T17-T21, U17-U21

Legend – Picture 1

Black: K15-K18, L11-L14, L19, L20, M9, M10, M20, N7, N8, N21, O6, O8, O21, Pa5, P21, Q5, Q21, R4, R17-R20, S4, S13-S16, S36-S41, T3, T12, T33-T35, T42, U3, U11, U29-U32, U43, V3, V11, V25-V28, V43, W3, W11, W21-24, W43, X3, X12-X21, X42, Y3, Y40, Y41, Z4, Z37-Z39, AA4, AA33-AA36, AB5, AB29-AB32, AC5, AC25-AC28, AD6, AD7, AD22-AD24, AE8, AE9, AE18-AE21, AF10-AF17

Red: L15, L16, M13-M15, N13-N15, O7, O13-O15, P6, P7, P12-P15, Q6-Q8, Q12-Q15, R5-R9, R12-R15, S6-S9, S12, T7-T10, T36-T39, U7-U10, U36-U39, V8-V10, V29, V36-V39, W26-W29, W36-W39, X26-X29, X36-X38, Y12, Y13, Y18-Y20, Y26-Y29, Y36-Y38, Z6-Z13, Z18-Z20, Z26-Z28, Z36, AA5-AA12, AA18-AA20, AA26, AA27, AB4-AB11, AB17-AB20, AB26, AB27, AC6-AC10, AC16-AC20, AD8, AD9, AD15-AD19, AE15-AE17

Legend – Picture 2

Red: L5-L8, M6-M8, N7, N8, O8, P8, Q7, Q8, R6-R8, S5-S8, Z8, Z10, Z12, Z14, Z16, Z18, Z20, AA9, AA11, AA13, AA15, AA17, AA19, AB8, AB10, AB12, AB14, AB16, AB18, AB20, AC9, AC11, AC13, AC15, AC17, AC19, AD8, AD10, AD12, AD14, AD16, AD18, AD20

Light Orange: O9-O18, P9-P18, O22, O23, P22, P23

Turquoise: J9-J18, K9-K18, L9-L18, M9-M18, N9-N18, Q9-Q18, R9-R18, S9-S18, T9-T18, U9-U18

Light Green: Z9, Z11, Z13, Z15, Z17, Z19, AA8, AA10, AA12, AA14, AA16, AA18, AA20, AB9, AB11, AB13, AB15, AB17, AB19, AC8, AC10, AC12, AC14, AC16, AC18, AC20, AD9, AD11, AD13, AD15, AD17, AD19, J26, K25, L24, M23, Q22, R23, S24, T25, U26

Yellow: Y4, Y5, Z4-Z6, AA5-AA7, AC5-AC7, AD4-AD6, AE4, AE5

Black: AB6, AB7

Purple: L25-L28, M24-M28, N24-N28, O24-O28, P24-P28, Q24-Q28, R24-R28, S25-S28

Legend – Picture 3

Dark Red: I4, J3, J4, K5, L6

Red: D20-D23, E19-E24, F18-F25, G18-G25, H18-H25, I17-I25, J13-J25, K13-K25, L13-L25, M13-M25, N13-N25, O13-O25, P13-P25, Q13-Q25, R13-R24, S13-S23, T13-T22

Pink: I6, J5, J6, K4, K6, L3-L5, M4, M5, N5, N6

Blue: O5, O6, P5, P6, Q5, Q6, S5, S6, T5, T6, U5, U6

Light Blue: P3, P4, Q3, Q4, R4-R6, S3, S4, T3, T4

Light Green: Q9, Q10, R9-R11, S10-S12, T11, U10-U12, V9-V11, W9, W10

Yellow: T12

Off White: I7-I12, J7-J12, K7-K12, L7-L12, M7-M12, N7-N12, O7-O12, P7-P12, Q7, Q8, Q11, Q12, R7, R8, R12, S7-S9, T7-T10, U7-U9

Legend – Picture 4

Red: H5-H7, I3-I8, J2-J7, J11, K2-K7, K10-K12, L3-L6, L9-L13, M4-M7, M8-M14, N7-N13, O7-O9, P7-P13, Q4-Q6, Q8-Q14 R3-R6, R9-R13, S2-S7, S10-S12, T2-T7, T11 U3-U8, V5-V7

Green: D9-D18, E7-E12, E14-E19, F6-F8, F10-17, F19, F20, G5-G21, H4, H8-H10, H15-H22, I9, I17-I23, J18-J20, J22 J23, K19-K23, L19-L24, M20-M24, N20-N24, O20-O24, P20, P21, P23, P24, Q20-Q24, R19-R24, S19-S23, T18-T23, U9, U17-U20, U22, U23, V4, V8-V10, V15-V22, W5-W21, X6-X8, X10-X16, X18-X20, Y7-Y12, Y14-Y19, Z9-Z17

Dark Red: J8, K8, L7, L8, M7, N4-N6, O4-O6, P4-P6, Q7, R7, R8, S8, T8

Yellow: E13, F9, F18, J21, P22, U21, X9, X17, Y13

Legend – Picture 5

Dark Green: AA5-AA24, AA26-AA33, Z6-Z14, Z16-Z33, Y7-Y8, Y10-Y18, Y20-Y33, X8-X11, X13-X33, W9-W27, W29-W33, V10-V15, V17, V18, V20-V22, V24-V30, V32,V33, U11, U13-U33, T12-T33, S13, S14, S16-S33, R14, R18-R22, R24, R25, R27-R31, R33, Q19-Q33, P20-P33, O21, O22, O25-O29, O31-O33, N22, N26-N33, M27-M33, L28-L33, K29-K33, J30-J33, I31-I33, H32, H33, G33, AB6, AB7, AB9-AB33, AC7-AC17, AC19-AC29, AC31-AC33, AD8-AD11, AD13-AD20, AD22-AD33, AE8-AE14, AE16-AE33, AF10-AF23, AF25-AF33, AG11, AG12, AG14-AG18, AG20-AG33, AH12-AH25, AH27-AH33, AI13, AI14, AI16-AI33, AJ14, AJ18-AJ31, AJ33, AK19-AK23, AK25-AK33, AL20-AL28, AL30-AL33, AM21, AM22, AM25-AM33, AN22, AN26-AN33, AO27-AO33, AP28-AP30, AP32, AP33, AQ29-AQ33, AR30-AR33, AS31-AS33, AT31, AT32, AU33

Red: AB8, Z15, AG19, R23, W28, AH26, P37-V37, P39-V39

Yellow: AD12, V16, AD21, R26, AK24, AC30, AH35, AJ35, AI36-AI39

Light Green: R36, T36, P38-V38

Black: S36, AI35

Turquoise: X12, AE15, V19, AA25, O30, AP31, AG36-AG39, AH36-AH39, AJ36-AJ39, AK36-AK39

Light Orange: Y9, AC18, V23, R32, AJ32

Purple: U12, AG13, Y19, AF24, V31, AL29

Medium Brown: Z34-Z39, AA34-AA39, AB34-AB39, AC34-AC39, AD34-AD39

Use the SHAPE tool to add a yellow star at the top of the picture.

Legend – Picture 6

Dark Brown: E16-E18, F15, F19, G8-G11, G15, G19, G23-G25, H6, H7, H12, H15, H19, H21, H22, H26, I5, I13, I15, I19, I20, I26, J4, J14, J26, K4, K8, K26, L4, L24, L25, M4, M23, N4, N24, N25, O4, O8, O26, P4, P14, P26, Q5, Q13, Q15, Q19, Q20, Q26, R6, R7, R12, R15, R19, R21, R22, R26, S8-S11, S15, S19, S23-S25, T15, T19, U16-U18.

Light Brown: F16-F18, G16-G18, H8-H11, H23-H25, I6-I12, I16-I18, I21, I23-I25, J5-J9, J11-J13, J15-J22, J24, J25, K5-K7, K9, K10, K12-K23, K25, L5-L11, L13-L23, M5-M11, M13-M15, M17, M19, M21, M22, N5-N11, N13-N23, O5-O7, O9, O10, O12-O23, O25, P5-P9, P11-P13, P15-P22, P24, P25, Q6-Q12, Q16-Q18, Q21, Q23-Q25, R8-R11, R23-R25, S16-S18, T16-T18

Pink: J10, P10

Red: M16, M20

Green: M18

White: H16-H18, I22, J23, K11, K24, L12, M12, N12, O11, O24, P23, Q22, R16-R18

Thank You!

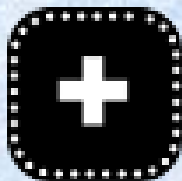
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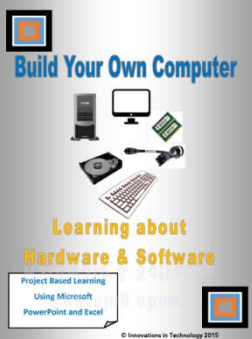


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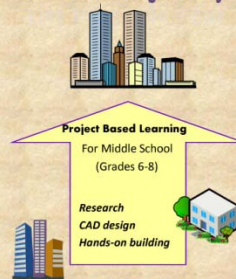


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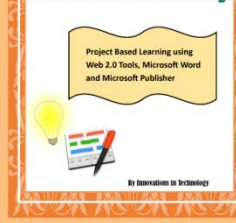
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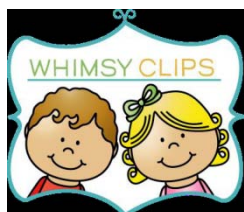
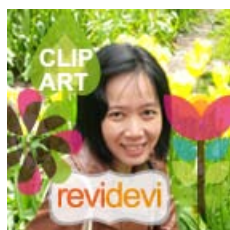
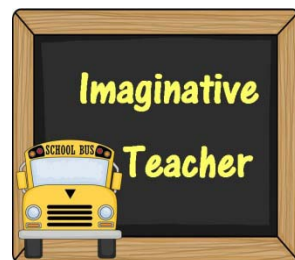
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