

The carbonate rhombohedron

by Robert William Whitby

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References

1. Robert William Whitby, octahedron1sted.pdf
2. Robert William Whitby, Snowflake.mov, on the octatom site of Youtube.com

Introduction

The successful modeling of the atomic structure of snowflakes required a triplet of O-atoms. The same is true of the carbonate rhombohedron. The results of this modeling is presented in the following drawings—

Figure 1. Assembling an O_3CCO_3 rhombohedron

Figure 2. O-atom to O-atom join between two O_3CCO_3 -groups

Figure 3. O_3CCO_3 -pair join

Figure 4. Three CO_3 -rhombohedral assemblies color-coded to differentiate the O-triplets so that they may be seen as layers within a larger rhombohedron.

Figure 5. Rhombohedron assembly of O_3CCO_3 -rhomboheda—Step 1: The violet layer joins the blue layer

Figure 6. Rhombohedron assembly of O_3CCO_3 -rhomboheda—Step 2: the green layer joins the blue and violet layers.

Figure 7. Rhombohedron assembly of O_3CCO_3 -rhomboheda—Step 3: the blue layer joins the blue, violet, and green layers.

Figure 8. Extended rhombohedral layers—blue and violet

Figure 9. Extended rhombohedral layers—violet and green.

Figure 10. Extended rhombohedral layers—green and blue.

Figure 11. Three Ca-atoms cleftly joined to the C-atom of a CO_3 -group.

Figure 12. Inverse view of three Ca-atoms cleftly joined to the C-atom of a CO_3 -group.

Figure 13. Planar assembly of Ca_3CO_3 -groups

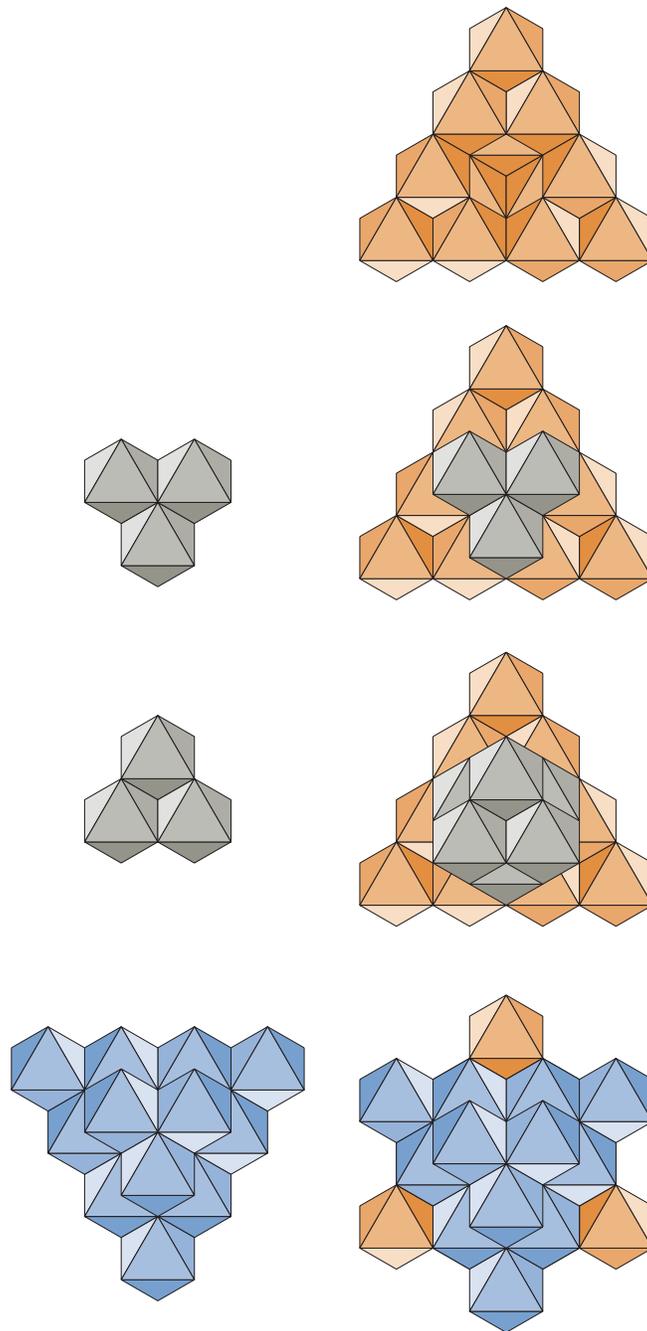


Figure 1. Assembling an O_3CCO_3 rhombohedron

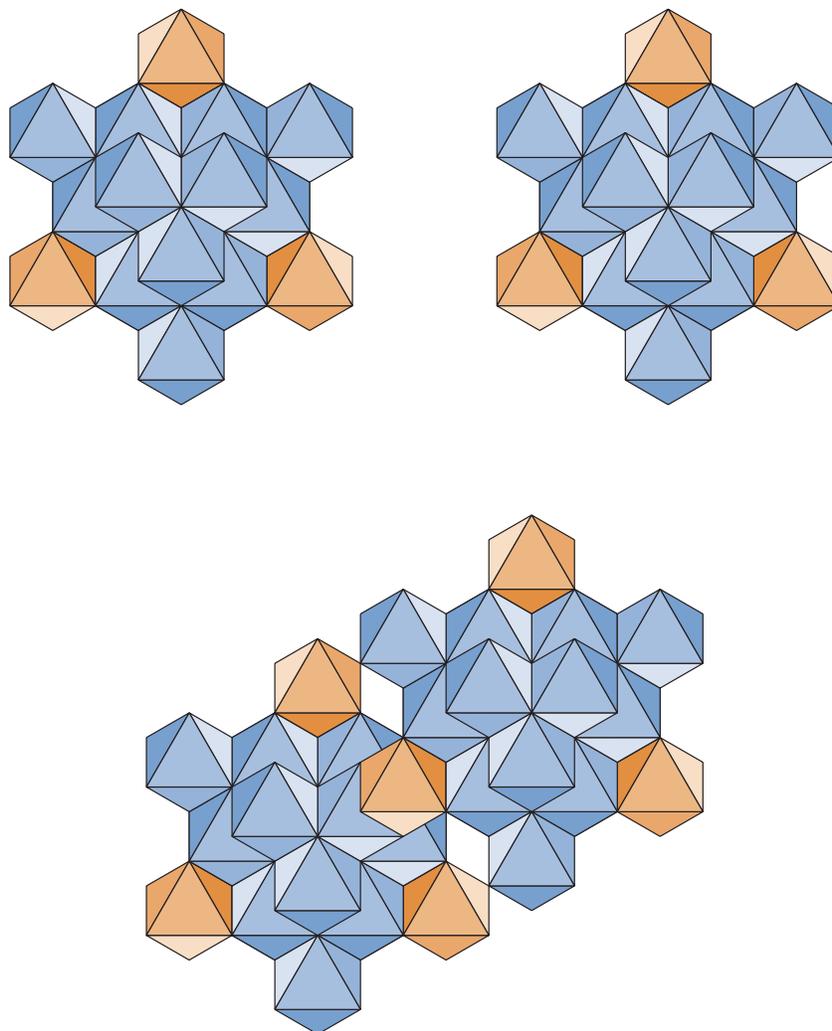


Figure 2. O-atom to O-atom join between two O_3CCO_3^- groups.

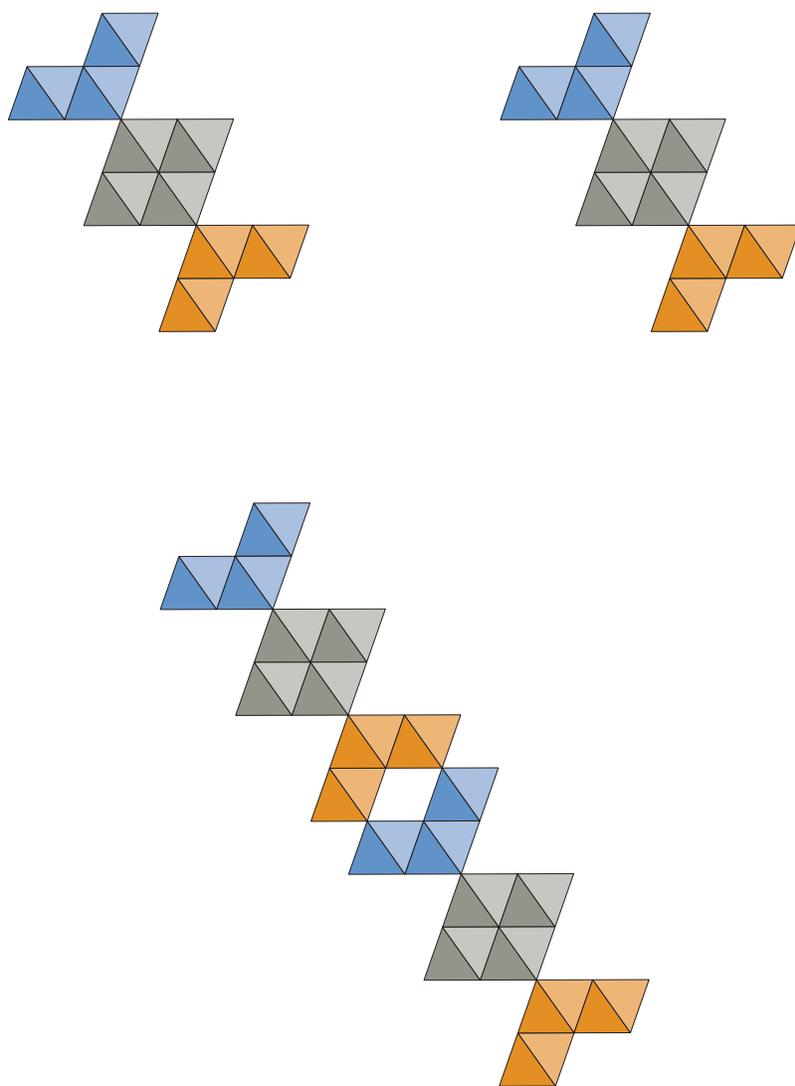


Figure 3. O_3CCO_3 -pair join.

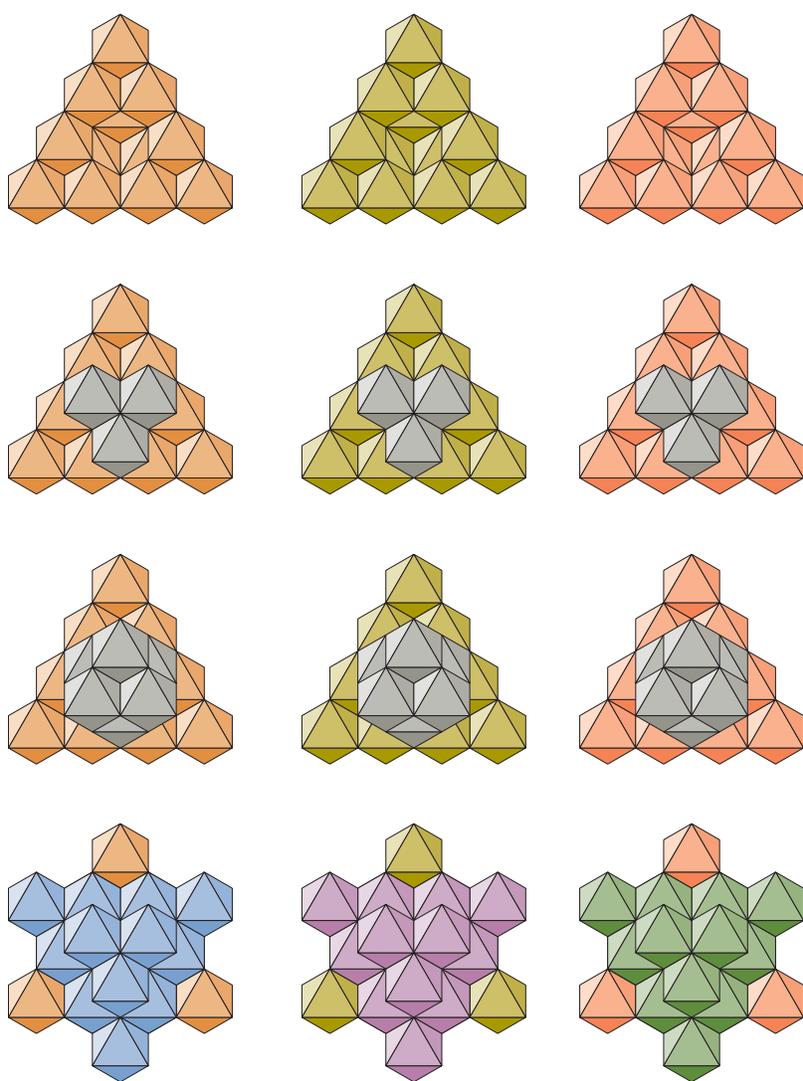


Figure 4. Three CO_3 -rhombohedral assemblies color-coded to differentiate the O-triplets so that they may be seen as layers within a larger rhombohedron.

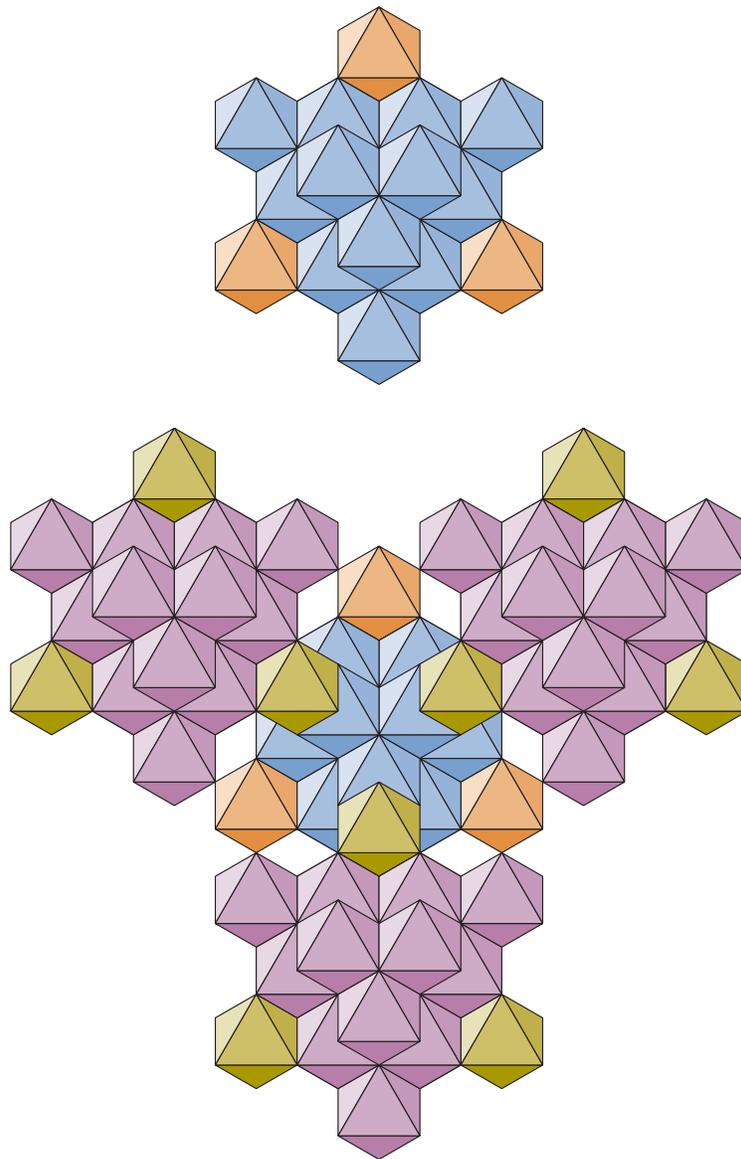


Figure 5. Rhombohedron assembly of O_3CCO_3 -
rhombohedra—Step 1: The violet layer joins the blue
layer

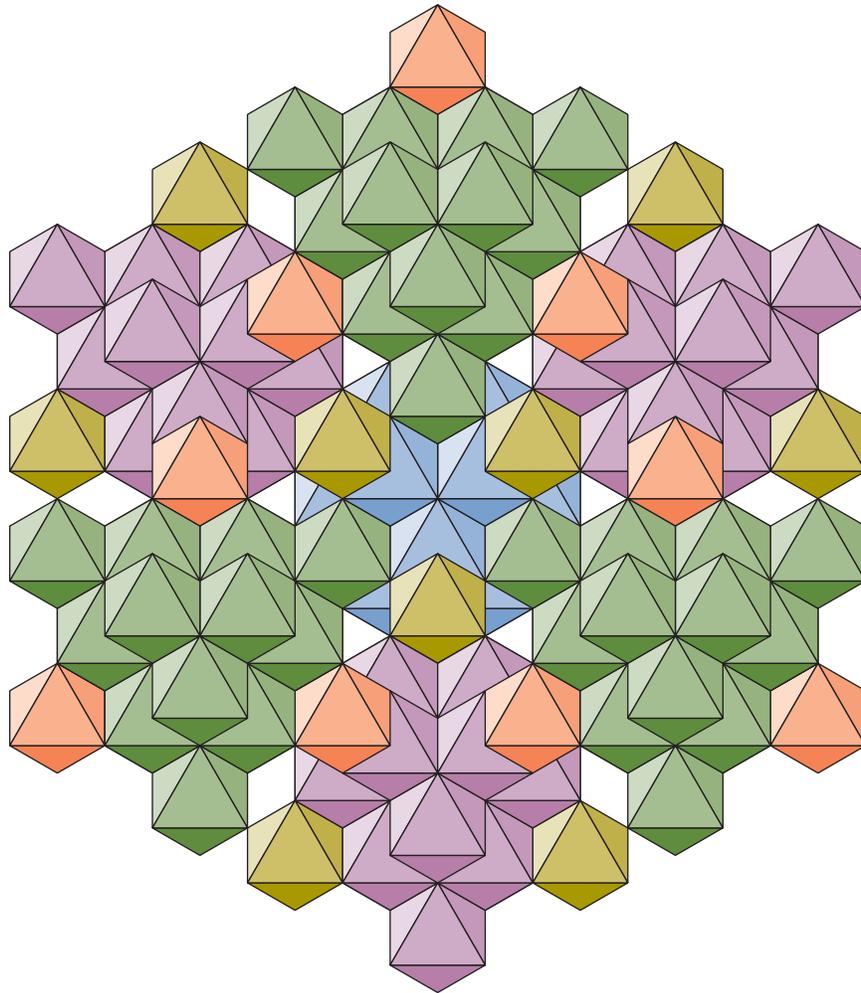


Figure 6. Rhombohedron assembly of O_3CCO_3 -rhombohedra—Step 2: the green layer joins the blue and violet layers.

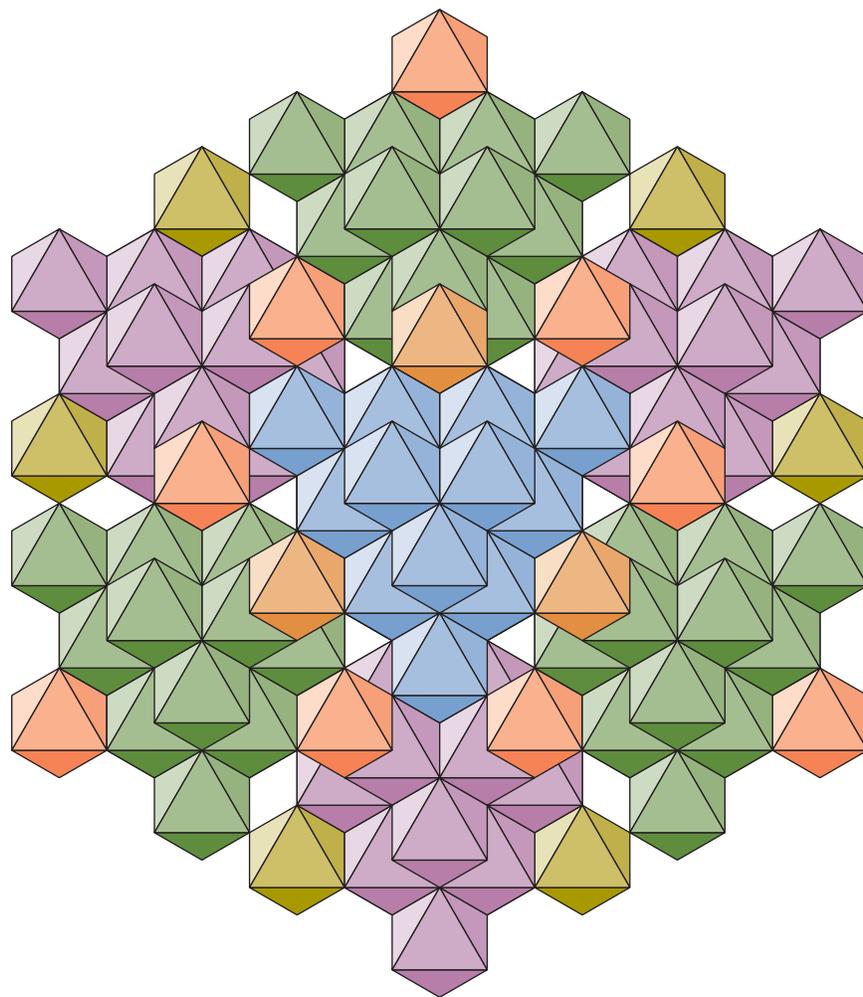


Figure 7. Rhombohedron assembly of O_3CCO_3 -rhombohedra—Step 3: the blue layer joins the blue, violet, and green layers.

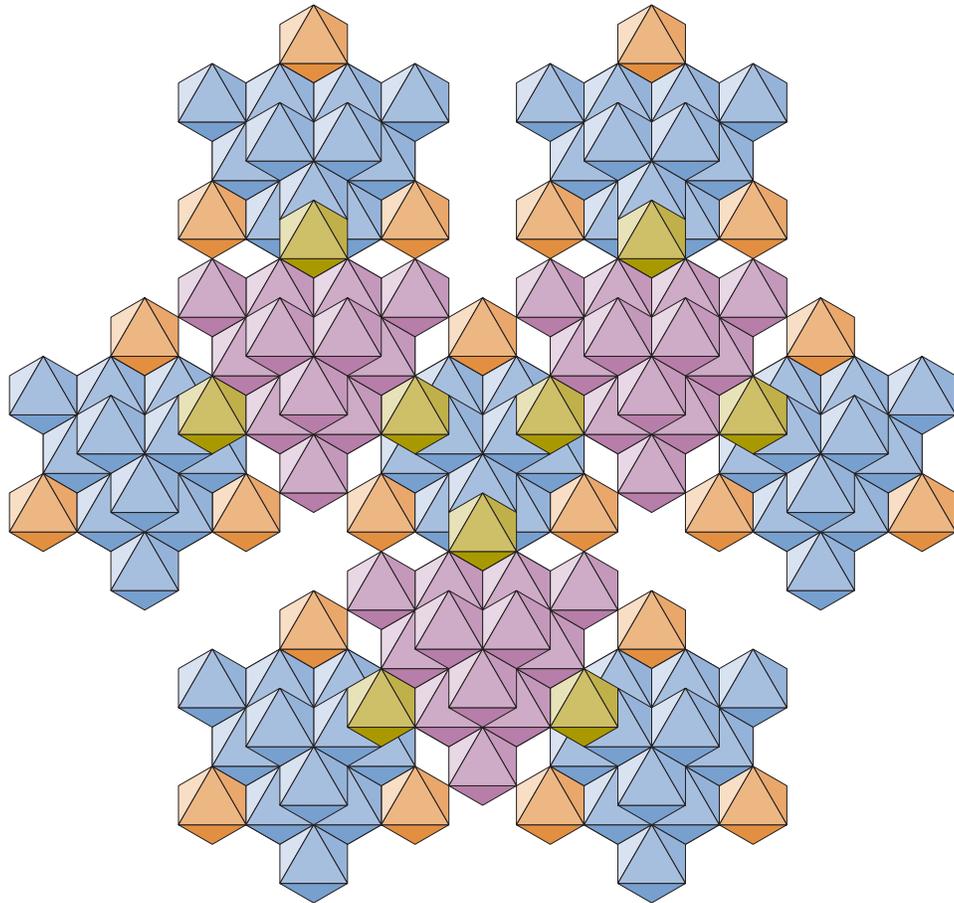


Figure 8. Extended rhombohedral layers—blue and violet

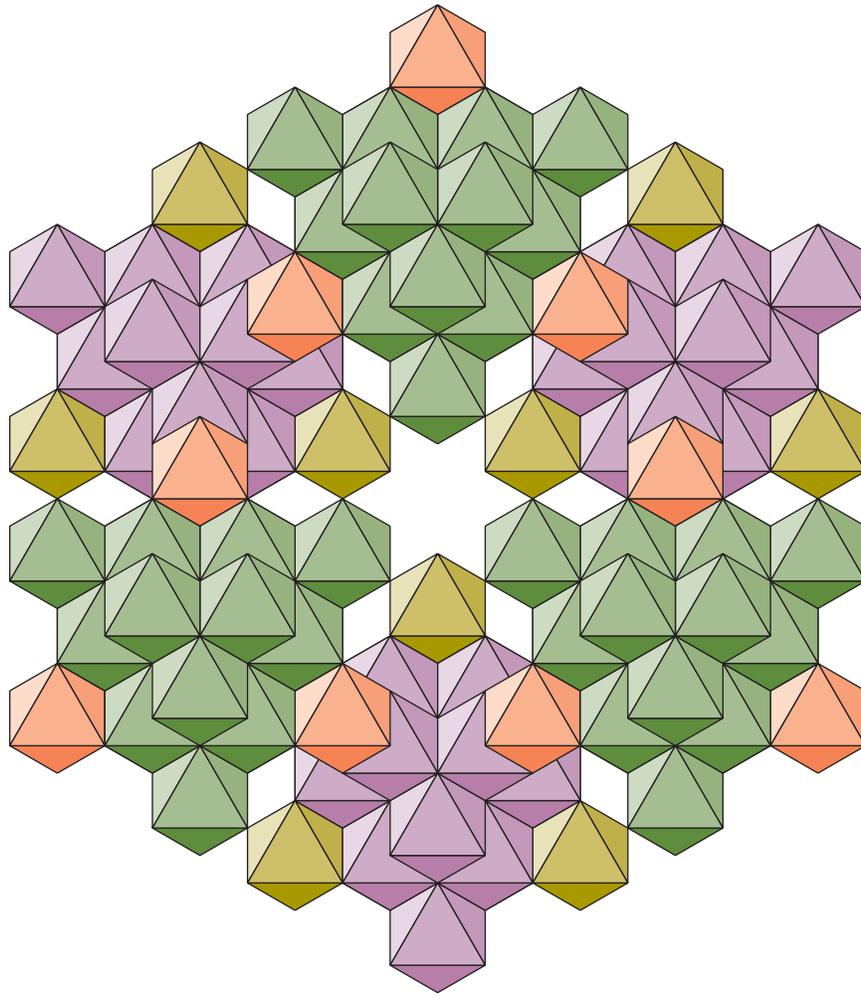


Figure 9. Extended rhombohedral layers—violet and green.

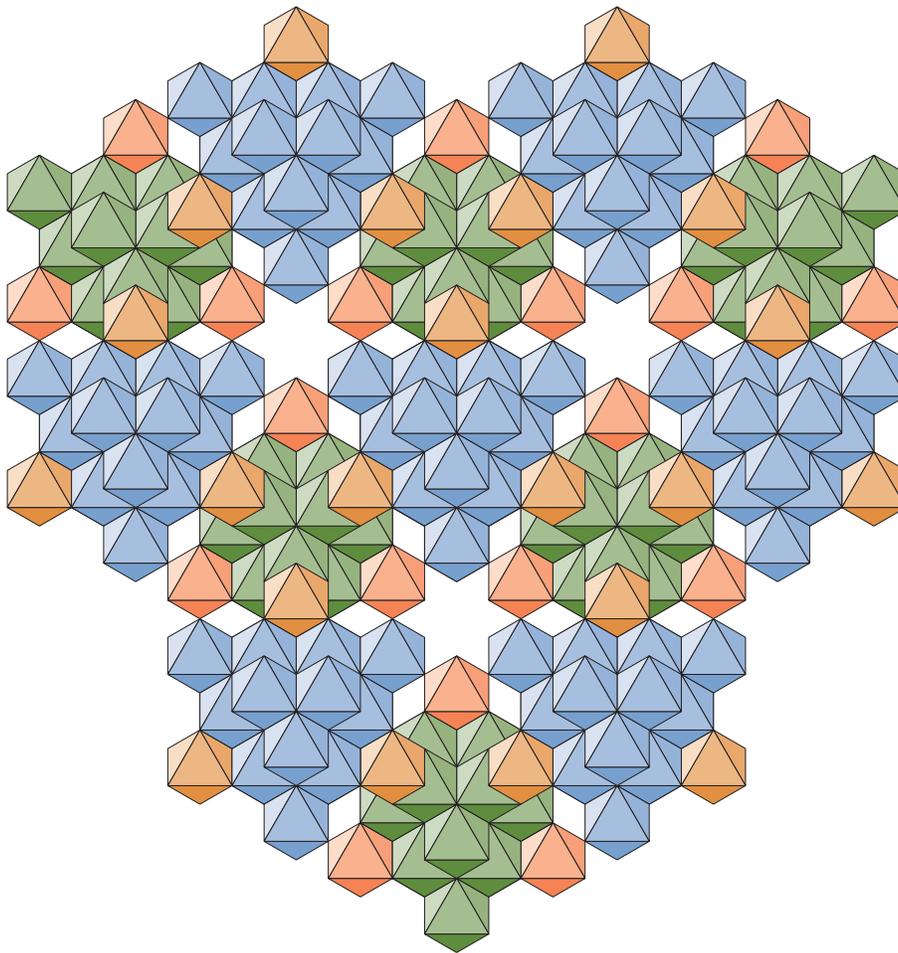


Figure 10. Extended rhombohedral layers—green and blue.

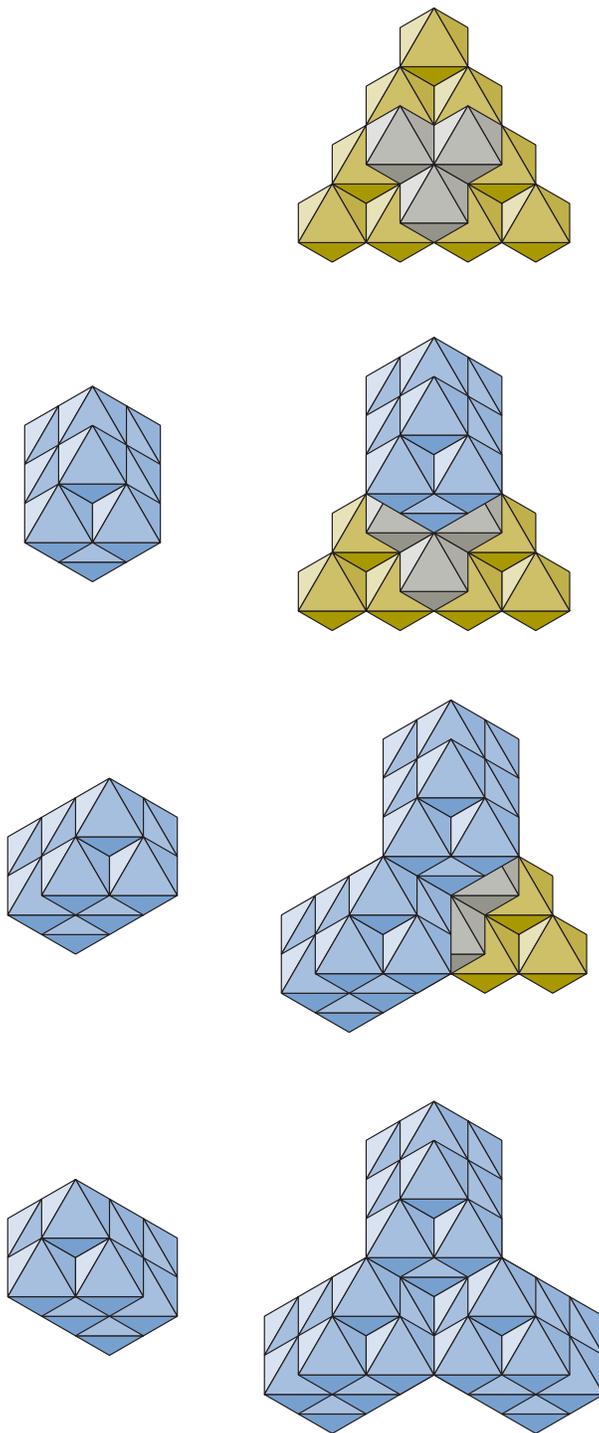


Figure 11. Three Ca-atoms cleftly joined to the C-atom of a CO_3 -group.

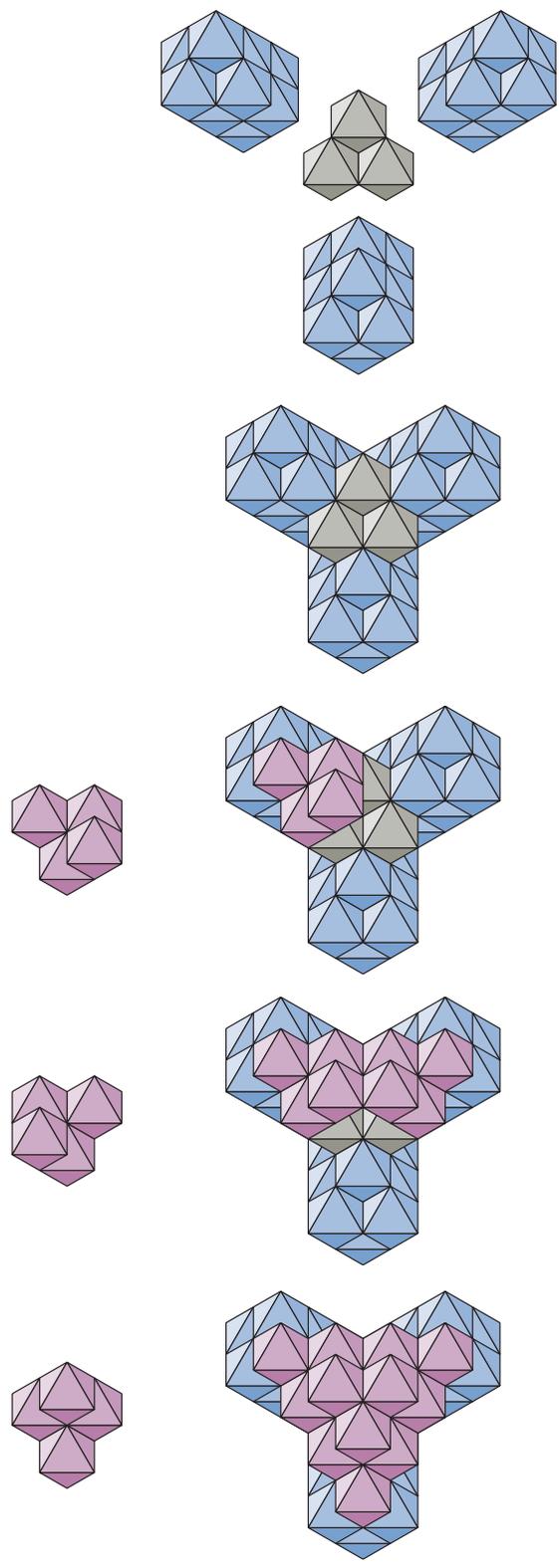


Figure 12. Inverse view of three Ca-atoms cleftly joined to the C-atom of a CO₃-group.

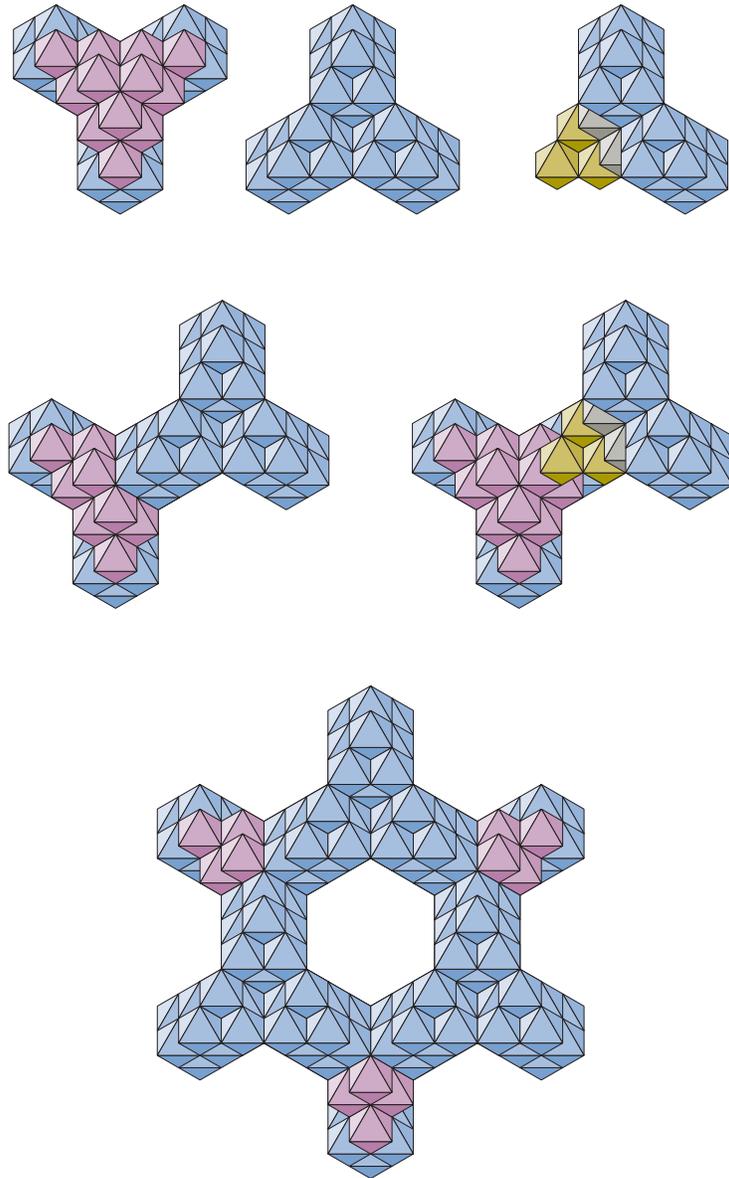


Figure 13. Planar assembly of Ca_3CO_3 -groups