

Video, handout, links at [drorbn.net/Treehouse](http://drorbn.net/Treehouse)

## The Basic Features.

3



rotation only

\$



rotation-reflection

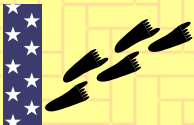
Gotta  
catch  
'em  
all!

M



free mirror-reflection

G



free glide-reflection



**Theorem.** There are precisely 17 patterns with which to tile the plane, no more, no less. They are all made of combinations of the 10 basic features, **2**, **3**, **4**, **6**, **2**, **3**, **4**, **6**, **M**, and **G**, as follows:

✓	Dror's	Conway's	crystallo- graphic	✓	Dror's	Conway's	crystallo- graphic
	<b>2222</b>	2222	p2		<b>33</b>	3*3	p31m
	<b>333</b>	333	p3		<b>222</b>	2*22	cmm
	<b>442</b>	442	p4		<b>22M</b>	22*	pmg
	<b>632</b>	632	p6		<b>MM</b>	**	pm
	<b>2222</b>	*2222	pmm		<b>MG</b>	*o	cm
	<b>333</b>	*333	p3m1		<b>GG</b>	oo	pg
	<b>442</b>	*442	p4m		<b>22G</b>	22o	pgg
	<b>632</b>	*632	p6m		<b>∅</b>	0	p1
	<b>42</b>	4*2	p4g				