Factor Frenzy

Multiple objectives are directly or indirectly supported through the implementation of this routine. The student expectations that follow are not inclusive of all of the skills that may be impacted by a student's ability to factor whole numbers.

Objectives:

The student is expected to:

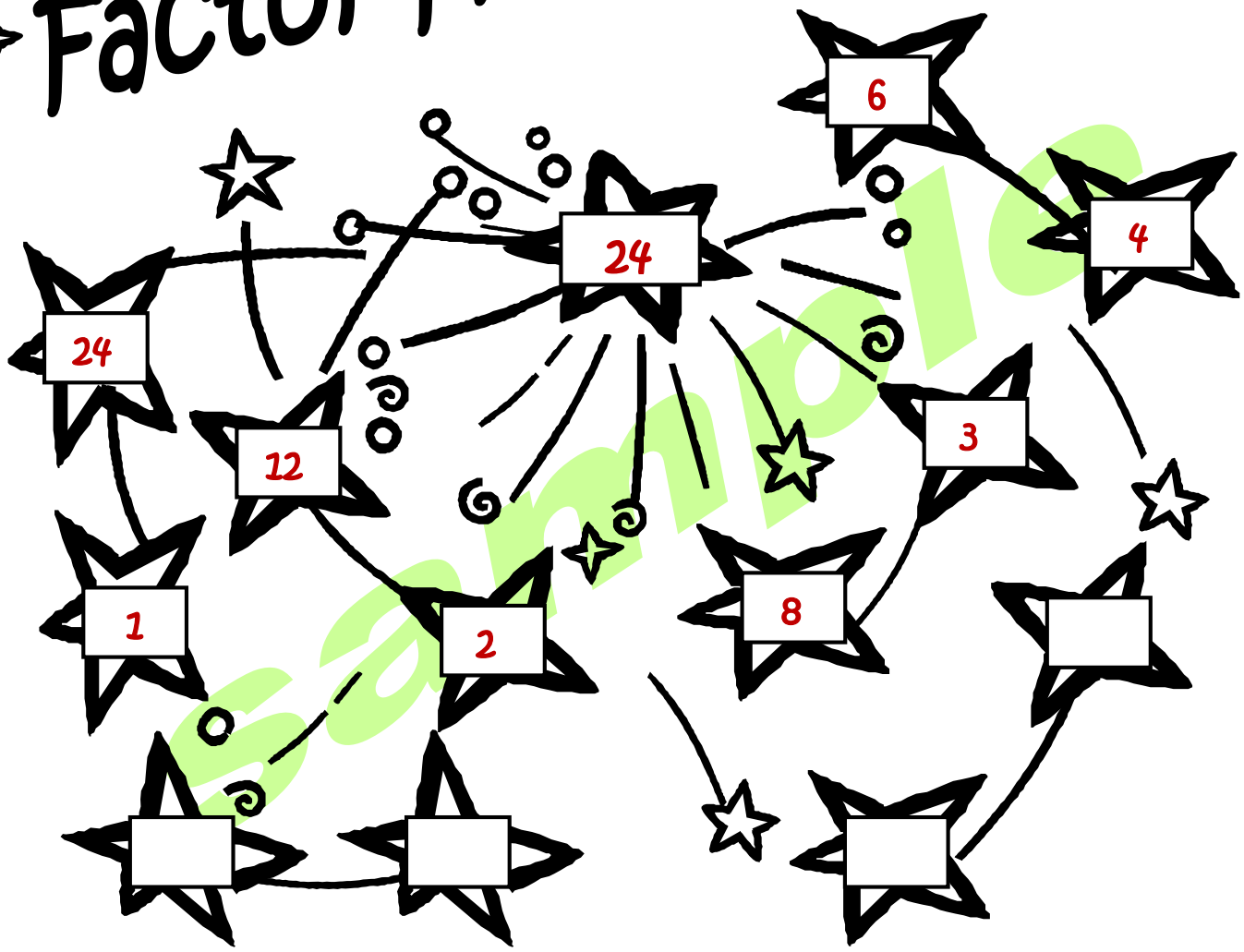
- **3.4F** recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts
- **3.5B** represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams and equations
- **3.5D** determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product
- **4.3C** determine if two given fractions are equivalent using a variety of methods
- **4.3D** compare two fractions with different numerators and different denominators and represent the comparison using the symbols >, =, or <
- **4.4H** solve with fluency one- and two-step problems involving multiplication and division, including interpreting remainders
- **5.4A** identify prime and composite numbers
- **5.4D** recognize the difference between additive and multiplicative numerical patterns given in a table or graph

Directions: Reproduce the following template (page 3) manually or by using a poster machine. Laminate the finished product. When introducing the routine, model arrays with manipulatives to facilitate the connection between the concrete and the absract. Review the meaning of factors. Factors are numbers you multiply to get another number. For instance, the factors of 15 are 1, 3, 5 and 15 because 1 x 15 = 15 and 3 x 5 = 15. To implement the routine, students generate the factors (preferably in pairs) of a predetermined number (i.e. 12, 24, etc.) Begin simply and adjust the cognitive demand as the students' level of proficiency increases.

Encourage students to explain how they know they have listed all of the factors of the number under consideration. Highlight students that organize their thinking. Create a t-chart to organize the factors.

Extend students' thinking by pressing for the generalization that numbers either have exactly two different factors, 1 and itself (prime), or more than two different factors (composite). Do not state the generalization until students begin to see a pattern in the number of factors.

Factor Frenzy



24	
1	24
2	12
3	8
4	6



sample

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