Use this decision tree if you are interested in using Wisconsin Fast Plants® to teach genetics and would like some help getting started.

Do you want students to use Fast Plants in an inquiry-based investigation in which students gather evidence and develop explanations for the inheritance patterns they observe, making inferences about genotypes?

NO → Do you want students to use Fast Plants as a straightforward confirmation of what they have already learned about the ratio of inherited phenotypes that Mendelian genetics predicts?

NO → There are many other genetics-related learning goals. For additional assistance with teaching with Fast Plants, please post on our Social Network at fastplants.ning.com. Include basic background information about your learning goals and interests in using Fast Plants. We respond to posts on the network within 1-2 business days, sometimes faster!

YES → The Wisconsin Fast Plants Program's "Who's the Father?" investigation can be used with either monohybrid or dihybrid inquiries. Teacher's guides that are available free to download:

- **MONOHYBRID**
- **DIHYBRID**

A full "Who's the Father?" kit, including seeds and growing materials can be purchased from Carolina Biological Supply.

YES → Do you want students to confirm the inheritance ratios that they learned are typical when a SINGLE Mendelian trait is inherited (simple dominant/recessive inheritance that demonstrates segregation)?

NO → Do you want students to confirm the inheritance ratios that they learned are typical when TWO unlinked Mendelian traits are inherited (demonstrating both segregation and independent assortment)?

YES → **GROWN IN SOIL:** Do you want students to plant and grow Fast Plants in soil — to observe growth, development, and reproduction in addition to scoring how the two Mendelian traits of interest are expressed?

NO → **GERMINATED IN A PETRI DISH:** Dihybrid Mendelian inheritance patterns can be observed in 3-day old seedlings that emerge from seeds germinated on a Petri dish that is kept exposed to a close fluorescent light source 24/7. Non-purple stem and rosette are the two traits best suited for observing in Petri dish germinated seedlings. Visit fastplants.ning.com for photo samples.

YES → All lines of Fast Plants express their phenotypes well when grown in soil. Dihybrids include crosses between any two of these stocks:

- non-purple stem
- yellow-green leaf
- rosette
- tall plant

Do you want to order genetic stock seed packets?

NO → For dihybrid genetics kits that have all the materials and seeds for growing Fast Plants in soil, visit Carolina Biological Supply's website.

YES → Individual seed packets can be purchased for these stocks:

wild type (high purple)**	**non-purple stem****	**rosette****
wild type (standard)**	**yellow-green leaf***	**tall plant**

*Yellow-green leaf trait cannot be identified in seedlings germinated in a Petri dish; this stock must be grown in soil.
**These stocks express their traits well in both soil and Petri dish conditions.

YES → **GROWN IN SOIL:** Do you want students to plant and grow Fast Plants in soil — to observe growth, development, and reproduction in addition to scoring if the one Mendelian trait of interest is expressed?

NO → **GERMINATED IN A PETRI DISH:** Monohybrid Mendelian inheritance patterns can be observed in 3-day old seedlings that emerge from seeds germinated on a Petri dish that is kept exposed to a close fluorescent light source 24/7.

Non-purple stem and rosette are the two traits best suited for observing in very young germinated seedlings.

A kit for germinating in a Petri dish the Parental, F1, and F2 generations, demonstrating recessive non-purple stem inheritance is available from Carolina Biological Supply.

YES → All lines of Fast Plants express their phenotypes well when grown in soil. This includes:

- non-purple stem
- yellow-green leaf
- rosette
- tall plant

Fast Plants take about 5-7 days to grow large enough to score their phenotype. **Are you looking for something faster?**

NO → Do you want to order packets of genetic stock seeds?

NO → For monohybrid genetics kits that have all the materials and seeds for growing Fast Plants in soil, visit Carolina Biological Supply's website.

YES → Do you want to purchase a full set of 3 generations of monohybrid inheritance seeds?

- Parent 1 & Parent 2
- 1st generation (F1)
- 2nd generation (F2)

NO → Individual seed packets can be purchased for these stocks:

wild type (high purple)**	**non-purple stem****	**rosette****
wild type (standard)**	**yellow-green leaf***	**tall plant**

*Yellow-green leaf trait cannot be identified in seedlings germinated in a Petri dish; this stock must be grown in soil.
**These stocks express their traits well in both soil and Petri dish conditions.

YES → Carolina Biological Supply's genetics seed set for non-purple stem (anl) inheritance—includes seeds for both Parents (ANL/ANL x anl/anl), the F1 generation (ANL/anl) and F2 generation (ANL/anl, ANL/ANL, anl/anl).

NOTE ABOUT GERMINATING IN A PETRI DISH:

Most recessive and dominant traits in Fast Plants genetic stocks can be observed in 3-day old seedlings germinated on paper toweling in a Petri dish. Yellow-green leaf and tall plant DO NOT express well in a Petri dish.

NOTE ABOUT THE PURPLE STEM TRAIT:

The expression of purple in Fast Plant stems is affected by light – more light is better for both plants grown in soil and seeds germinated in a Petri dish.

NOTE ABOUT GROWING IN SOIL:

The recessive and dominant traits in Fast Plants genetic stocks can be observed in seedlings emerging from soil in approximately 5-7 days, depending on temperature & other environmental conditions.

FOR MORE INFORMATION & HELPFUL LINKS VISIT OUR WEBSITE:

www.fastplants.org

WISCONSIN FAST PLANTS PROGRAM