

# Expanding Youth Knowledge and Skills in Lawnmower Safety

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## NEED FOR INNOVATION

### Injuries to Youth

Lawnmowers are common across all regions of the United States, in both rural and urban settings. Oftentimes youth will be tasked with mowing the lawn as they reach a certain age. Unfortunately, few resources exist to educate youth on lawnmowers which is a contributing factor to youth lawnmower injuries.

### Estimated Annual Youth Lawnmower Injuries

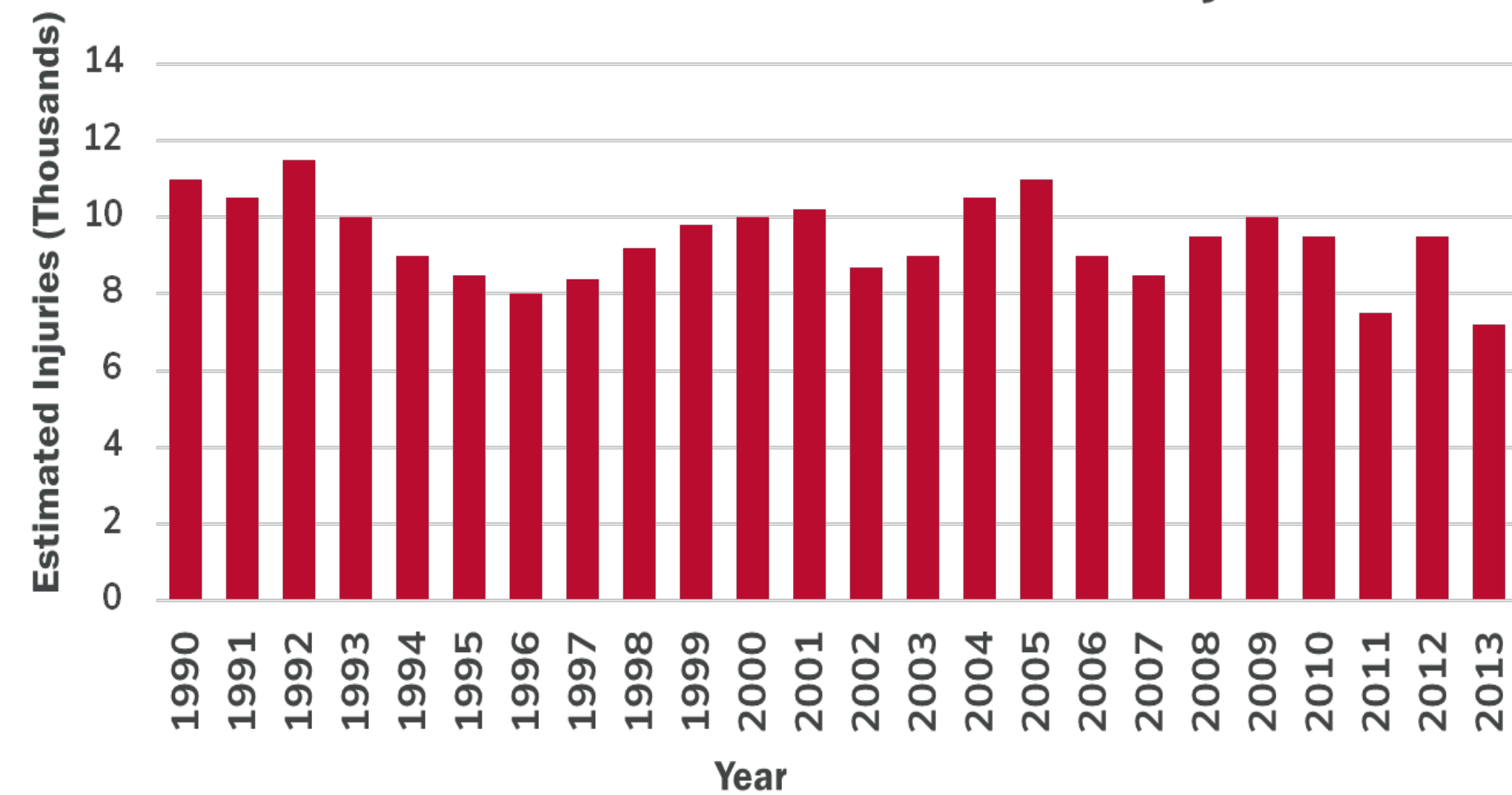


Figure 1: Average annual youth lawnmower injuries between 1990 and 2013 as reported in the National Electronic Injury Surveillance System of the United States Consumer Product Safety Commission

From 2004 to 2013 there were an estimated 9,350 lawnmower related injuries in children ages 20 and under per year, down from the 9,400 annual injuries to the same age range between 1990 and 2004<sup>1,2,3</sup>. The American Society of Plastic Surgeons identified 16 recommendations to reducing youth injuries, 15 of which are the responsibility of the operator in being more aware and educated<sup>4</sup>.

### Has This Been Done Before?

Minimal resources exist for youth operation of mowers. Many manufacturers recommend operators be 16 years old.

A current 4-H project book series focuses on small engines. There are several activities about lawnmowers, but mostly from a maintenance perspective. These activities do not include safe operation of a mower<sup>5</sup>.

Another 4-H book series focuses on safe tractor operation and was developed to address the problem of youth injuries caused by tractors. This series was derived from an earlier 4-H program that found most participants agreed or strongly agreed that they were safer tractor operators because of the program<sup>6</sup>.

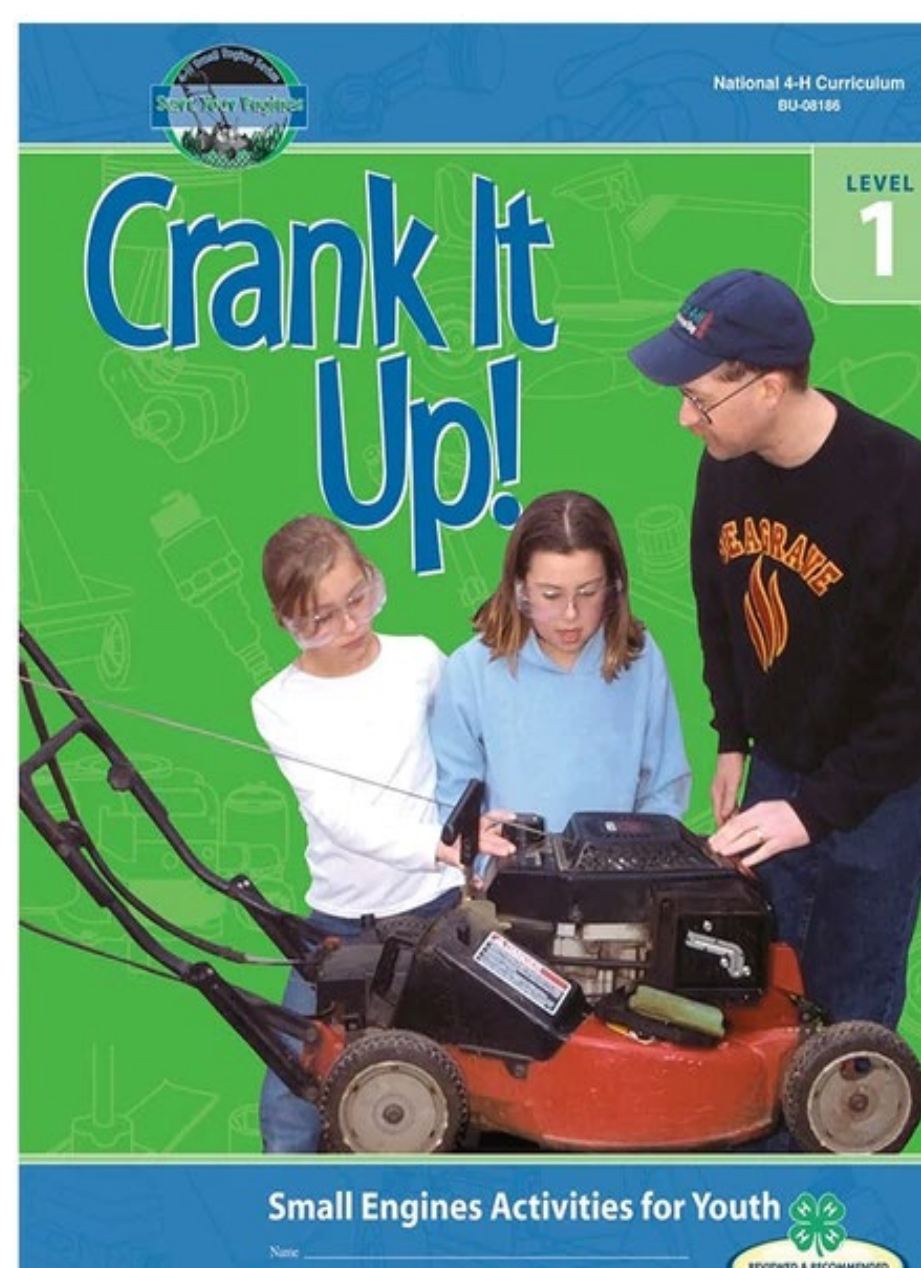


Figure 2: 4-H Small engine Series, Book 1

## HOW IT WORKS

### Learning With 4-H

4-H reaches nearly 6 million youth each year across all 50 states and the U.S. territories<sup>7</sup>. Youth ages 8-19 are eligible for completing project books, which are available in a wide range of topics. Project books engage youth in the 4-H experiential learning model through experience, reflection, generalization, and application activities<sup>8,9</sup>.

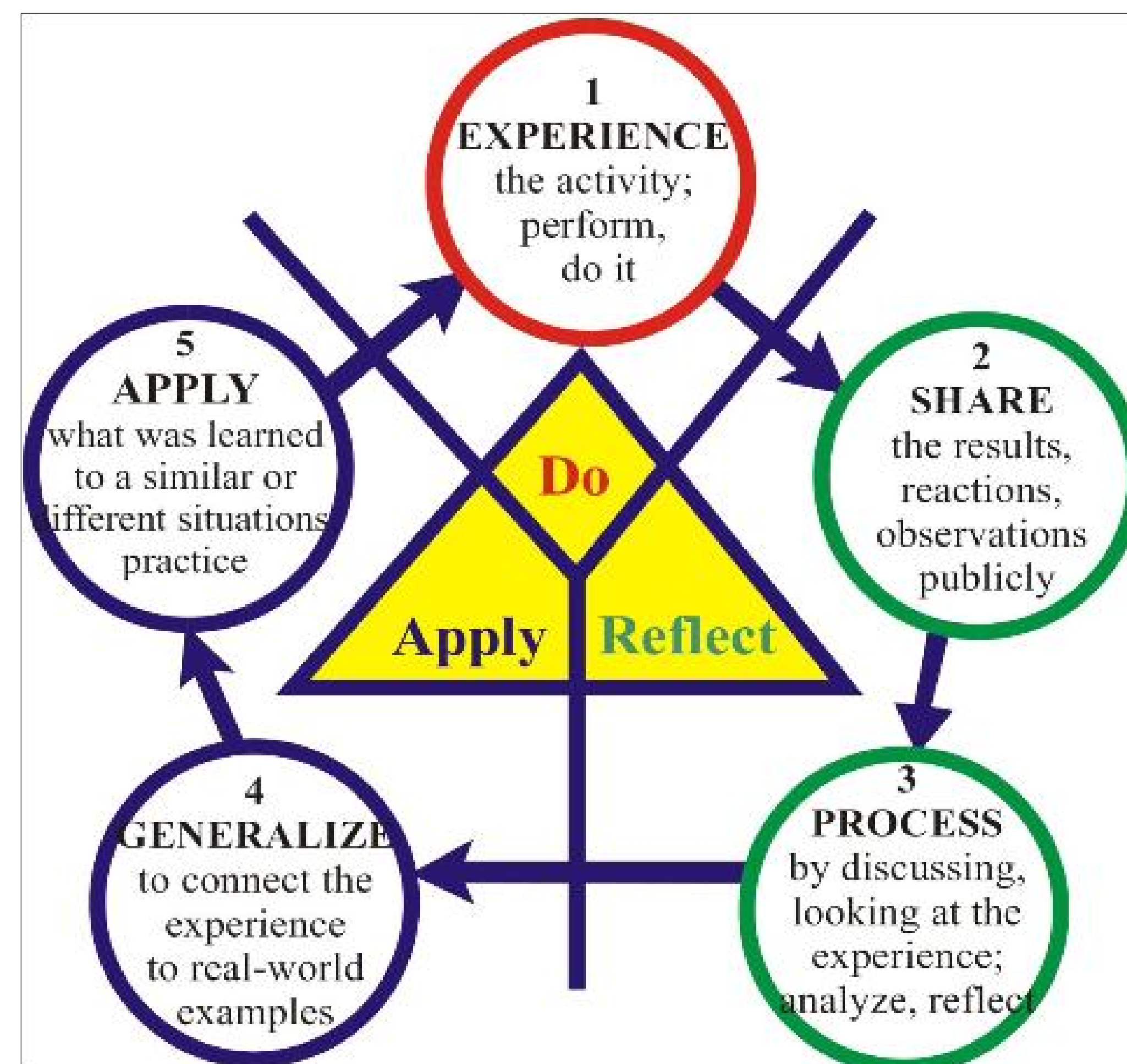


Figure 3: The 4-H experiential learning model.

### Development of Project Book

The project book was developed through several phases and objectives that were achieved through knowledge and experience from a panel of experts. The panel consisted of members from Ohio State and Purdue Universities. Phases of development centered on the following objectives:

1. Describe the characteristics of lawnmower safety, operation, and maintenance that will educate youth in 4-H.
2. Develop activities based on the experiential learning model that has been adapted to the national 4-H curriculum.
3. Develop a training and practice guide based on the national 4-H lawn mower competition.
4. Provide a draft project book for evaluation in the 2022 4-H year.
5. Publish the project book for use in the 2023 4-H year.

## RESULTS TO DATE

### Published Project Book

A 52-page 4-H project book available in Ohio and Indiana for 2023 4-H calendar year.

### Book Contents

- 3 Project Areas
  - Mower Safety
  - Making The Cut
  - Mower Maintenance
- 13 Activities
- 3 Talking It Over sections
- 4 Practice Pages

### Draft Project Book Feedback

Data was collected on a draft version which was sent along with a survey to 31 4-H professionals in Indiana and Ohio. The survey asked participants to rate various aspects of the book on a scale of 1-10. The survey had a response rate of 6% (n = 2). Notable section scores included:

- Manual Moment (M = 8.50)
- Glossary (M = 8.00)
- Illustrations (M = 8.00)
- Readability (M = 8.00)
- Activity Levels (M = 3.50)
- Background (M = 5.50)

Qualitative feedback (n = 15) from 4-H Youth and parents was also collected at the Indiana State 4-H Lawnmower Contest. Notable responses from this included:

- "Practice pages are a good idea"
- "Book fills a gap for kids"
- "Kids need this resource to learn"
- "The pictures are helpful"
- "Activities look like fun"
- "I would take this project"
- "Lots of words compared to other 4-H books"

Feedback was incorporated into the final version of the book by improving readability through the design of the book and combining junior and senior level activities into one.

### Final Project Book Feedback

An external review of the book was conducted by Agricultural Extension Educators. Three reviewers gave the book an average score of 96.3 out of 100. Qualitative responses from this review included:

- "Flows easily and great graphics and learning activities"
- "Text is easy to read and arranged in a logical order"
- "I found myself reading it and wanting to keep going"



Figure 4: Ready, Set, Mow! 4-H project book cover

## FUTURE PLANS

- Ready, Set, Mow! provides instruction and activities for youth to safely learn about lawn mowers as they develop their operation skills.
- Serves as a supplement to the 4-H Operation Contest and has potential to shape future contest content
- Provides a starting point for expansion of 4-H curriculum on topics such as lawncare machinery, lawn health, and lawncare businesses

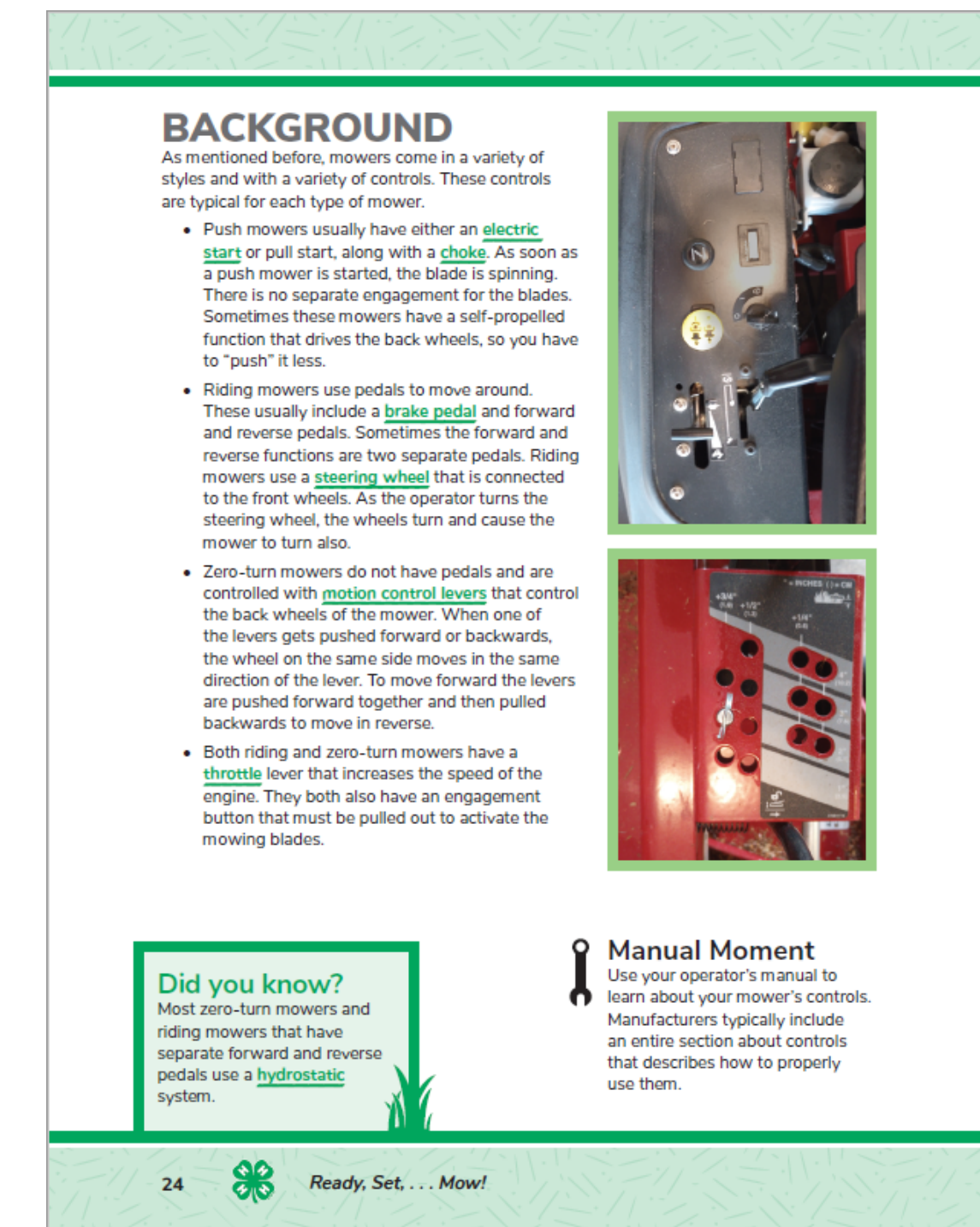


Figure 5: Background to You're in Control activity

## ASSOCIATED COSTS

Development support for this project was provided by the Youth Farm Safety Education and Certification Program, USDA-NIFA contract 20214152135103. The project book is available to youth at a cost of \$10 which covers the publication cost of the book.

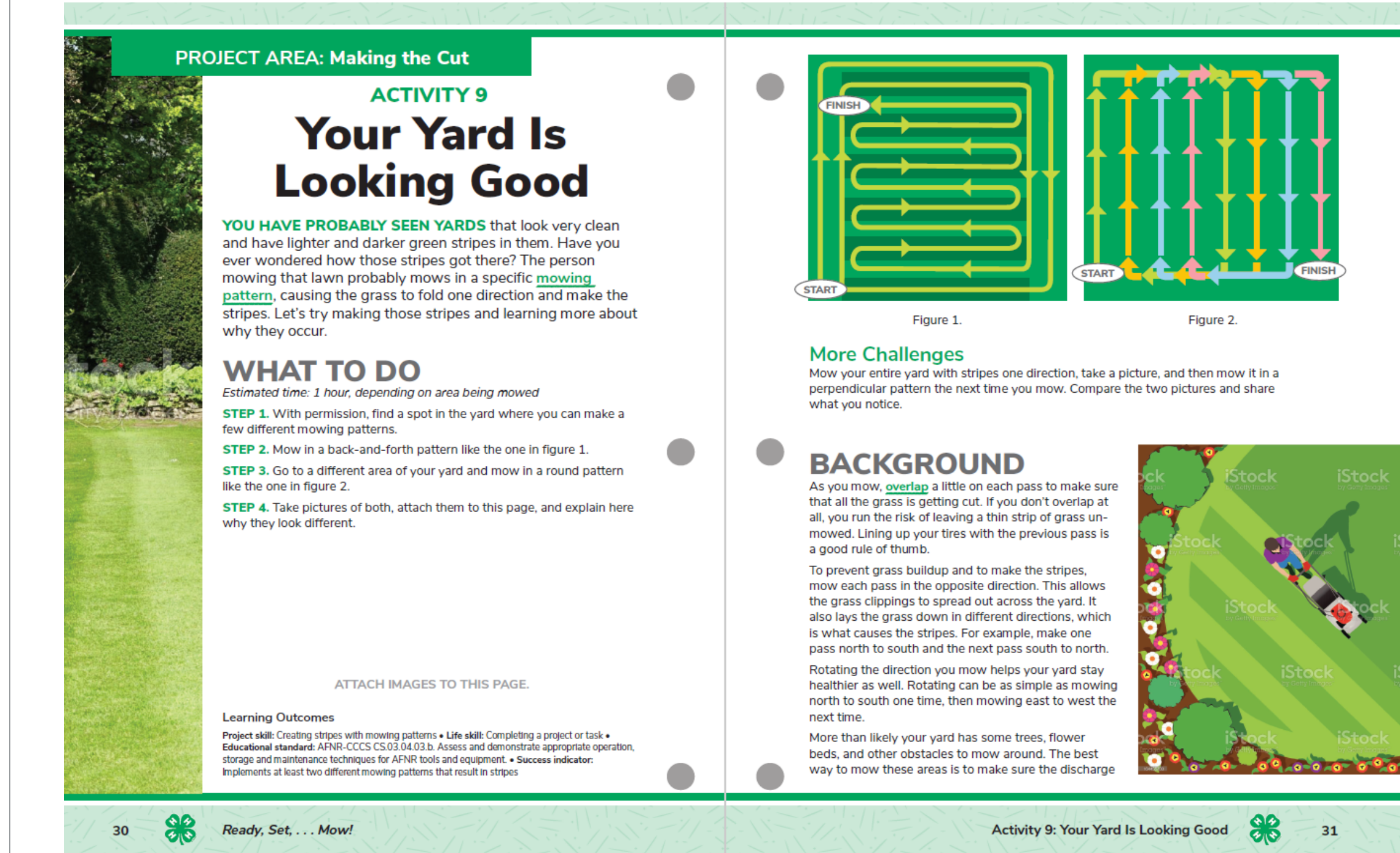


Figure 6: Your Yard Is Looking Good activity

## RESOURCES

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