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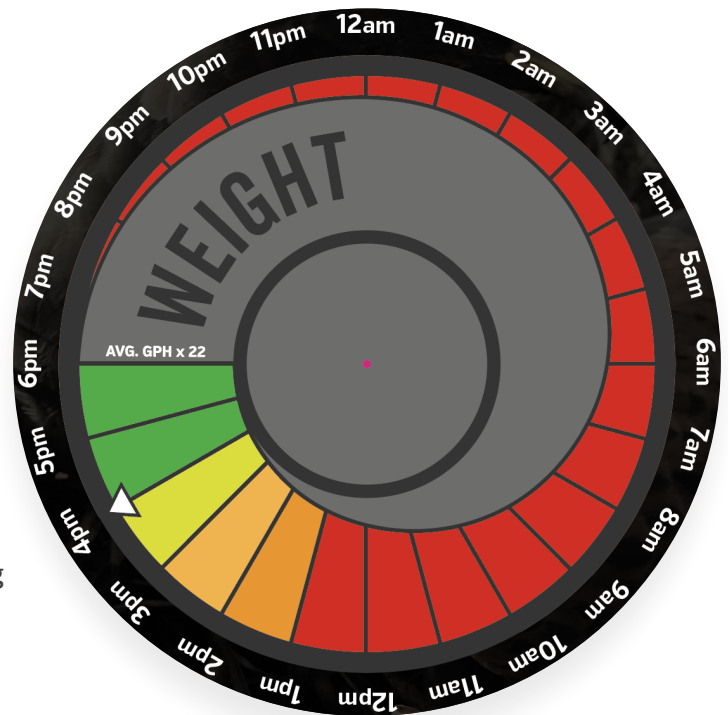
This card is the first in a series of products designed to help falconers teach and learn some of the sport's most challenging concepts, like managing a hawk's weight and appetite; assessing prey abundance; pressing advantage in a slip, and others. Although successful falconers have mastered these lessons for millennia, and contemporary books and videos contain a wealth of detailed knowledge, this approach offers something new.

Using visual metaphors and interactive elements—with few words or numbers—each Concept Card quickly communicates the essential elements of a single important idea. Armed with these intuitive teaching tools, falconry mentors can help novices grasp complex field craft and husbandry concepts from the comfort of a kitchen table.

In WEIGHT MANAGEMENT, for example, all the essential elements of managing a trained hawk's weight, appetite and daily metabolism are presented in one graphic. With a rotating dial, a spiral, and a bit of color coding, this card conveys:

- The hours in a day, with both hunting and feeding times displayed
- The bird's weight as it drops in the hours after feeding
- The point of optimal response in the daily cycle, and
- The necessary amount of food required to sustain the bird until the next day's hunt

This card is not a calculator. It does not connect to a database or determine a desired result. Rather, it conveys a complex process as a simple illustration: The bird hunts *at this time*, and it eats *this much* at *this hour*. And sometime later, depending on the numbers of grams eaten and hours passed, it will be ready to hunt again. Knowing these facts and the order in which they follow imparts an understanding of the general process that a falconer can then apply to any particular bird.



APPLYING THE LESSON

Every experienced falconer will have some basic understanding of the facts at issue here:

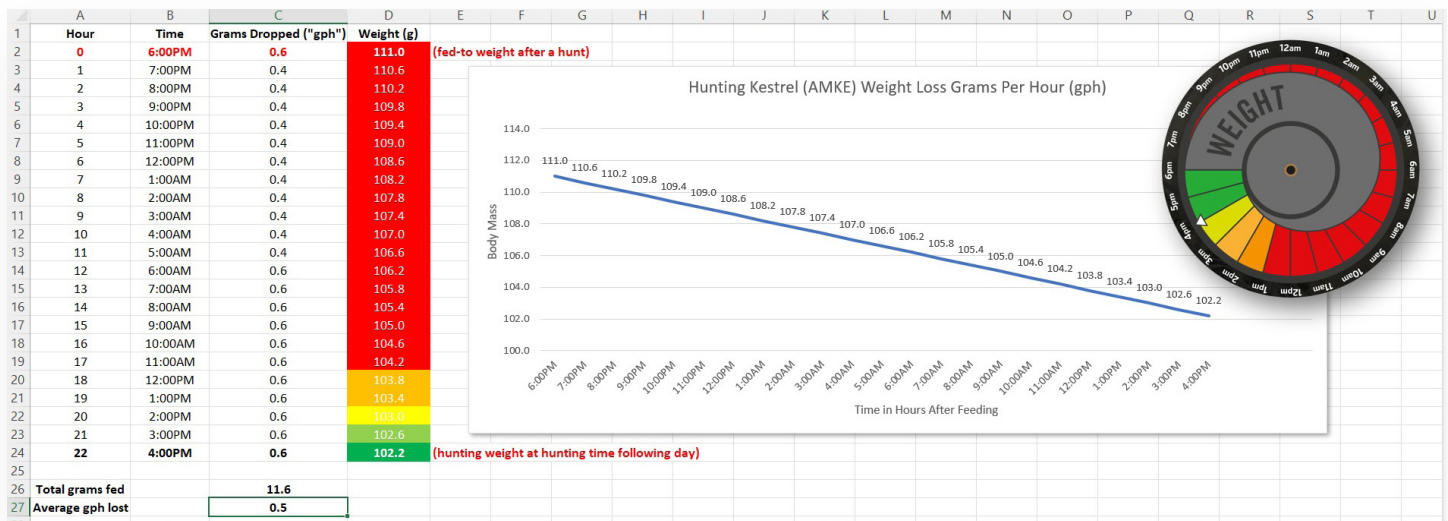
1. Birds start to lose weight soon after you feed them, and
2. At some point after every feeding, they are hungry again.

So, this is where I start the lesson: **Birds are always losing weight.** The gray area in the card graphic represents a bird's body mass; and the downward spiral over time is that mass measured in grams lost per hour, as the bird converts food mostly into heat, mutes and water vapor. While the hourly rate of weight loss can vary (according to food quality, air temperature, the bird's activity level, etc.), the rate can be averaged between feedings by dividing the number grams lost by the number of hours between measurements. This figure is expressed in the graphic as "AVG GPH."



The second point to make is that *falconers fly birds when the birds are most motivated to perform*. This is generally prior to a regular feeding, and often at the same time of day (and near the same weight) as the previous hunt or training session. The inner circle of the graphic represents this intersection of optimal weight and greatest motivation at the desired hunting or training time.

Finally, after a given period of hunting or other performance (estimated for our purpose at two hours, which may include travel to and from the field), the bird is fed an amount of food equal to the number of grams it's estimated to lose before the next scheduled outing. This amount is determined simply by multiplying the average number of grams lost per hour by the number of hours remaining. In this way, falconers can manage birds' weight and motivation, adjusting as necessary (and with considerable precision), virtually every day of the hunting or performance season.



Weight management of a female American kestrel (*Falco sparverius*) between the end of one day's hunt and the beginning of the next. Note the slight variations in grams lost per hour and its average. A copy of this spreadsheet comes with the card.

POP QUIZ!

Using the card and the information in this sheet (and maybe some scratch paper), now quiz yourself or your student with these sample questions:

1. Your red-tailed hawk flies best at 1200g and loses an average of 3g per hour. You prefer to fly at 4pm daily and to be home by 6pm. How many grams will you need to feed your bird to achieve optimal weight by 4pm the following day? What will the bird weigh immediately after feeding?
2. Your friend prefers to fly her merlin at 8am. The bird flies best at 185g. At 10am after every hunt, she feeds her bird until it weighs 207g. How many grams, on average, does her merlin lose per hour?
3. **BONUS ROUND!** Your American kestrel caught a starling at 7am when flying at 102g. You would like to hunt her again at 6pm the same day. You know she typically loses 0.6g per hour during daytime hours. How much can you feed her at 8am and hunt again that evening at 102g?

Answers: question 1a, 66g; Question 1b, 1266g; Question 2, 1g per hour; 6g (6g x 10 hours)

