Now that we've talked about six basic problem types, it's time to start solving them.

To do that, data analysts start by asking the right questions.

**Leading question:**

This is called a leading question because it's leading you to answer in a certain way.

**Closed-ended Questions:**

That means it can be answered with a yes or no.

These kinds of questions rarely lead to valuable insights.

Knowing the difference between effective and ineffective questions is essential for your future career as a data analyst.

**SMART methodology**.

Effective questions follow the **SMART methodology**.

That means they're specific, measurable, action-oriented, relevant and time-bound.

* S = Specific,
* M = measurable,
* A = action-oriented,
* R = relevant, and
* T = time bound.

Let's break that down.

**Specific questions**

Specific questions are simple, significant and focused on a single topic or a few closely related ideas.

This helps us collect information that's relevant to what we're investigating.

If a question is too general, try to narrow it down by focusing on just one element.

For example, instead of asking a closed-ended question, like, are kids getting enough physical activities these days?

Ask what percentage of kids achieve the recommended 60 minutes of physical activity at least five days a week?

That question is much more specific and can give you more useful information.

**Measurable questions**.

Measurable questions can be quantified and assessed.

An example of an unmeasurable question would be, why did a recent video go viral?

Instead, you could ask how many times was our video shared on social channels the first week it was posted?

That question is measurable because it lets us count the shares and arrive at a concrete number.

**action-oriented questions**.

Action-oriented questions encourage change.

You might remember that problem solving is about seeing the current state and figuring out how to transform it into the ideal future state.

Well, action-oriented questions help you get there.

So rather than asking,

how can we get customers to recycle our product packaging?

You could ask, what design features will make our packaging easier to recycle?

This brings you answers you can act on.

**Relevant questions**.

Relevant questions matter are important and have significance to the problem you're trying to solve.

Let's say you're working on a problem related to a threatened species of frog.

And you asked,

why does it matter that Pine Barrens tree frogs started disappearing?

This is an irrelevant question because the answer won't help us find a way to prevent these frogs from going extinct.

A more relevant question would be, what environmental factors changed in Durham, North Carolina between 1983 and 2004 that could cause Pine Barrens tree frogs to disappear from the Sandhills Regions?

This question would give us answers we can use to help solve our problem.

**time-bound questions**.

Time-bound questions specify the time to be studied.

The time period we want to study is 1983 to 2004. This limits the range of possibilities and

enables the data analyst to focus on relevant data.

Okay, now that you have a general understanding of SMART questions, there's something else that's very important to keep in mind when crafting questions, fairness.

We've touched on fairness before, but as a quick reminder,

**fairness**

fairness means ensuring that your questions don't create or reinforce bias.

Fairness also means crafting questions that make sense to everyone.

To talk about this, let's go back to our sandwich example.

There we had an unfair question because it was phrased to lead you toward a certain

answer.

This made it difficult to answer honestly if you disagreed about the sandwich

quality.

Another common example of an unfair question is one that makes assumptions.

For instance,

let's say a satisfaction survey is given to people who visit a science museum.

If the survey asks, what do you love most about our exhibits?

This assumes that the customer loves the exhibits which may or may not be true.

Fairness also means crafting questions that make sense to everyone.

It's important for questions to be clear and have a straightforward wording that anyone can easily understand.

Unfair questions also can make your job as a data analyst more difficult.

They lead to unreliable feedback and missed opportunities to gain some truly valuable insights.