Tips for finding difficult samples under the microscope

Samples such as sparse, transparent cells and tiny beads are difficult to find in X, Y and Z. These techniques will make it easier and help you avoid crashing the objective lens into the sample and breaking things.

Preset Köhler illumination (and DIC or phase contrast if you have them). This will improve the contrast and resolution. You may want to do this with an easier (a well stained slide), but similar sample. Center the field diaphragm.

Close the condenser aperture almost completely. That increases contrast and gives you greater depth of field when you are focusing (things appear in focus over a wider range of objective positions.)

Set the field diaphragm wide open. That will illuminate the entire field of view.

Move the objective the expected distance from the sample using the working distance on the objective.

Pre-position your sample. Use marks or circles on the slide to know where your sample is or at least to minimize the search area. Use the field diaphragm circle of light to position the slide. Temporarily close it down.

Put something else on the slide in the sample plane (e.g. marker pen circle) that is easy to find and focus on to get correct plane of focus.

Use a lower magnification, parfocal objective first to center the object and find the focus.

Move the stage while you are focusing. Your brain picks of moving objects more easily. It also will separate things on your slide from dirt on the lenses, which won't be moving.

Use fluorescent light to find fluorescent objects. If the fluorescence is bright it will be easy to find.