Use of analytical chemistry is becoming increasingly important in protection of our cultural heritage. Although the latter has a rather wide coverage, archaeology and thus archaeometry are in the center of this affair. It is well known that chemical analysis can play an important role in issues such as characterization, provenance, authentication, restoration and preservation that are all in the scope of archaeometry. In this presentation, the focus will be on the problem of forgeries and analytical instrumentation of low capacity. The use of portable XRF instruments, despite the associated problems of accuracy and precision, is relevant in authentication activities. The analytical performance problems are caused by both the low capacity of this instrument and the poorly defined and heterogeneous surfaces of items such as coins and other museum artifacts. However, valid solutions can be obtained as repeatability as low as 20% RSD is tolerated since large differences in concentrations are encountered in most cases. Some examples of applications will be presented regarding forgeries in Roman silver coins. The case of well-known Golden Winged Sea Horse Brooch from the Croesus treasure will be presented along with the role of analytical chemistry in the solution of problems. Possibilities of preparing and using a museum archive based on the chemical characteristics of materials relevant to cultural heritage will be discussed.